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The Assimilation of Nitrogen by Plants.

Messrs. Editors *American Farmer*:

In a late issue of the *FARMER* I presented a summary of the conclusions of Schloesing concerning the nitric ferment and the conversion of other forms of combined nitrogen by its action into nitric acid in the soil. In this place I invite attention to some of the conclusions of Sir John Bennet Lawes on the subject of the source of the combined nitrogen which supports the nutrition of plants. In his article on the "Drainage Waters of Rothamstead," published in the *Journal of the Royal Agricultural Society*, he states that the total combined nitrogen supplied by the rainfall on his experimental farm is only between 4 and 5 lbs. per acre, and the mean of continental estimates is about 10 lbs. per acre. The quantity of nitrogen as nitrates, which leaches away out of his soil in the drainage, is equal to an annual loss of nearly 42 lbs., or more than eight times as much as the rain supplies; a quantity equal to 268 lbs. per acre of ordinary nitrate of soda. This loss from the soil is thus shown to be a most important matter, especially when it is remembered that Mr. Lawes' soil is one of heavy dense clay. The loss is much greater from uncropped land than from land on which a crop is grown, the crop assimilating the nitrates as formed. From 15 to 17 lbs. of nitrogen were lost from plots of ground that had received no nitrogenous manures for many years, or more than three times as much as supplied by rain. Nearly the whole of this loss was during that period of the year when there was no crop on the ground.

When ammonium salts are applied to land the ammonia is fixed and retained by soil action, while the acid leaches out mainly in combination with lime, whereas the conversion of the ammonia into nitric acid commences at once, and if wet weather follows, is apparently complete in a few weeks, and then, of course, the nitric acid formed, if not assimilated by actively growing crops, also leaches out and carries off additional quantities of lime. Of course, the nitrogen of organic matter is more slowly converted into nitric acid. With 400 lbs. of ammonium sulphate applied in March, the April drainage contained per inch nitric acid equal to 43.8 lbs. nitrate of soda; but with a quantity of nitrate of soda containing nitrogen equal to 400 lbs. of ammonium salts nitrogen was lost per inch of drainage equal to 75.6 lbs. of nitrate of soda. In other words, if three inches of rain fall in April, we shall lose 136 lbs. of nitrate of soda if we have top-dressed with 400 lbs. of sulphate of ammonia in March, or about 215 of nitrate of soda if we have top-dressed with its equivalent amount of nitrate of soda.

If these estimates be true for this country it is no marvel that farmers cannot make ammoniated superphosphates pay by putting them on wheat sown in the fall. We ought to drill in floated phosphates with the wheat in the fall and top dress with the ammonia salts or nitrate of soda in April, and let the sulphuric acid go.

In summer at Rothamstead, the drainage from plots manured with 200 to 400 lbs. of ammonium salts contains little or no nitrates if potash and phosphates have been supplied; but, with excess of ammonium salts, or deficiency of ash minerals, the nitrates produced are imperfectly assimilated by crops and appear in the drainage. In winter, the drainage water from all the plots tends to approximate in composition. How strikingly are the disasters of the use of one-sided manures here illustrated! How immense have been the financial losses in American farming from want of knowledge concerning the proper use of nitrogenous manures! Mr. Lawes found that always the loss of nitrates in the drainage increased with the deficiency of potash and phosphates in the soil. With nitrate of soda, spring sown, the loss was greater than with spring-sown ammonium salts, but with ammonium salts, autumn sown, the loss was still more considerable.

Reckoned over thirty years not quite one-third the nitrogen applied as manure was recovered in the crops under favorable conditions as to mineral manure and growth, and a much less quantity where there was a deficiency of potash and phosphoric acid and defective growth accordingly.

When farm-yard manure is largely applied there is frequently evolution of free nitrogen, which is, of course, lost. When the soil is imperfectly aerated and saturated with water nitric acid may be decomposed and destroyed by soil action and the nitrogen evolved and lost as free nitrogen. In ordinary farming, with a larger proportion of nitrogen supplied as organic matter and less as nitrates or ammonium salts, (more animal manures and less chemicals), the loss of nitrogen will be much less than from Mr. Lawes' experimental plots. Mr. Lawes gives some practical conclusions; the whole paper is of immense value. I hope the agricultural press generally will multiply copies of it. Mr. Lawes concludes:

1. Most of the nitrogen of farm crops is derived from the nitric acid of nitrates within the soil.
2. The nitric acid is produced from the nitrogenous compounds of the soil; of animal and vegetable manures, and from the ammonia of commercial manures, and from that supplied by rain and condensation from the atmosphere. Nitric acid is provided by the application of nitrates, and in minute quantities, is condensed from the air and supplied by rain.
3. The ammonia of ammonium salts is rapidly converted into nitric acid in the soil, and so is the nitrogen of some organic matters, as urine. The nitrogen of farm-yard manure, roots, stubble, &c., may require many years for its complete conversion; the nitrogenous compounds of the soil also are but slowly converted into nitric acid.
4. When there is no vegetation, or when there is vegetation, but excess of drainage, there is loss of nitric acid.
5. Permanent grass lands always covered by vegetation will utilize a maximum amount of nitric acid in the growth and a minimum will appear in the drainage.

6. As the various farm crops differ widely in the period of their most active growth, the length of time they occupy the land, and the character and range of their roots, their capacity for taking up nitric acid from soils is widely different.

7. The exhausting character of cereals is due to the brief period of their growth and the length of time the land is bare of vegetation, and consequent great loss of nitric acid by drainage.

8. When ammonium salts or nitrates are used as manure, the only unexhausted residue of nitrogen left in the soil by the drainage for future crops is found in the increased roots and other residues of crops left on the land, and this only slowly available.

9. When oil cake, &c., is fed to stock the formation of nitric acid from the manure produced is slower and lasts longer than when ammonium salts or nitrates are applied. Under the liberal use of animal manures the fertility of the soil is maintained and may be increased considerably.

I offer the above, Messrs. Editors, as a contribution to your paper for the use of farmers who may not have seen the whole article of Mr. Lawes elsewhere. M. G. ELLIS, M. D.

Agricultural Matters Abroad.

From our Correspondent in Paris.

THE ANNUAL FAT CATTLE SHOW in this city is about opening; the entries will not differ sensibly from those of last year. The Congress will prove to be very important, especially in what refers to agricultural implements and machinery.

ITEMS IN BEET CULTURE.—An agriculturist draws attention to the curious fact, that in a field of beet sown this year, a space some 33 by 20 feet was shaded by plane trees. The difference between the plants thus grown in the shade and full light was very marked; in the shade, a notable percentage of roots ran to seed; the foliage was developed at the expense of the bulbs, and the yield of sugar was three times less.

The eminent German chemist Mæcker has had his attention drawn to the remarkable diminution in weight of beet pulp preserved in trenches or silos; in the course of five and fourteen months that diminution has varied from 36 to 44 per cent. Of course much allowance was to be made for the excessive fermentation. But what astonished the chemist most was the loss in dry or organic matter, so that veritably the pulp became more aqueous after being stored in the silo. And this result was borne out by tests made at the silos of numerous farmers. These organic matters revealing such a notable loss, represented as much as 25 per cent. of nitrogenous substances alone. The loss was not due wholly to the leaking of the water, but to fermentation, and the latter will be greater, as the mass is more porous. Hence, the necessity to cover well, and tramp closely the pulp in the trench, and not employ chaff or cut straw for mixing, as that augments the porosity of the mass, and hence fermentation. Beet pulp ought to be used as early as possible, and the

chemist in question is of opinion, that the compressed pulp would be more valuable for feeding purposes; containing less water, it would be less fatiguing for the animal's stomach.

The horses of Perche (percherons) in Normandy are in great request with foreigners; alarmed at the best specimens being purchased, several breeders have resolved that while they will continue to sell good animals for exportation, they will keep the flower of the flock for themselves.

The Eastern Shore.

The Eastern Shore Peninsula proper begins south of Elk river and the Delaware & Chesapeake Canal. The country north and west of these has nothing in common either in soil or people with the peninsula. The portion of Cecil county included in these limits, that is the portion between Elk and Sassafras rivers, is the finest agricultural part of the county, and includes all the peach-growing section. That part lying between Back creek, Elk and Bohemia rivers to the Delaware line forms part of what was formerly known as Bohemia Manor, and was originally, with a large tract in Delaware, the princely domain of Augustin, Baron Herman, and much of it still in the hands of his lineal descendants. The manor lands are fine for wheat and grass, but in many parts clay predominates to such an extent as to make a cold soil of very tenacious character. South of Bohemia river lies Sassafras Neck, the garden spot of Cecil. A bad place to emigrate from, but an extra good place to go to if the immigrant is fortunate enough to find any one who wants to sell land there. In this favored neck the peach reaches the greatest perfection, and aside from this every crop that can be grown in this land can be found here in as great perfection anywhere.

Crossing Sassafras river, reach the little county of Kent. In some character of productions Kent resembles Sassafras Neck of Cecil, especially in the upper part. That part immediately on the Delaware line runs into the great Delaware forest, a great tract of swampy timber in which the Sassafras, Chester and Choptank rivers take their rise; the "little forest," west of Massey's and the "swamps" in the southwest near the bay, are basins of stiff, white-oak soil, which may some day be reclaimed and made grand meadows. Kent is the leading peach county on the Shore, but pears and other fruits are also grown largely and to great perfection. The wheat crop is rapidly resuming its old importance and the average yield shows an annual increase.

The river Chester forms the southern line of Kent. South of this stream we find Queen Anne's, a larger county than Kent, and one whose soil is of much less uniform character. That part of Queen Anne's lying along Chester river, north and east of Chertown, is generally of a very light and sandy character and well adapted to early vegetables, but much of it is very poor and thin. Around Sudlersville is a very highly improved region of light red clay loam, good

for any crop, while on Chester river, in the neighborhood of Ralph's Landing, are some farms not to be excelled anywhere. The southern and eastern parts of the county extend into the white-oak soil of the tidewater and contain the best grain, grass and stock farms in the county. Here, the stately short-horn and the waddling Hereford may be seen in happy content "in clover."

The beautiful Wye river and the broad Eastern bay separate Queen Anne's from Talbot county. Who has not heard of the wheat lands of Talbot in the old palmy days of "Blue Stem White?" Talbot consists of two sections, the tidewater region and that lying between tidewater and the upper waters of the Wye and Tuckahoe at Hillsboro. This last was in our boyhood mainly included in the "Chapel" district, and this was synonymous with poverty-stricken soil. The tidewater region is a great grain-growing section and its soil is of the "white-oak" character. The upper part of the county has soil of a lighter character which was formerly badly worn out, but has of late been much improved. Between the Wye and St. Michael's or Mile's rivers lies a magnificent body of land which will be the best grain and grass land of the county when it is divided up among more owners.

On the upper waters of the Choptank river, between the Talbot and Delaware lines, lies Caroline, formerly the "Montgomery" of the Eastern Shore, and still to a large extent, a region of light sand and pine trees. Its one redeeming agricultural neighborhood is Tuckahoe Neck, lying between Tuckahoe and Choptank rivers. Much of the piney woods country however, can be made profitable for early trucking, and many Northern people are settling them. Some small redeemed tracts of swamp land near the Delaware line yield great crops of corn and grass.

Southeast of Caroline, Dorchester county occupies the space between the Choptank and Nanticoke rivers. The upper part of this county on the rivers is of a very light and sandy character, but improves rapidly towards the salt water. The bayside region, extending from the mouth of the Choptank to Tangier Sound, lies in the white-oak clay and much of it is of a swampy and marshy character. Whenever this land is drained and well cultivated it is very productive. The traveller from Cambridge to the Blackwater will probably meet as many mosquitoes as in any equal distance on the face of the globe.

Crossing the Nanticoke we reach Wicomico county, formerly part of Somerset. The whole of this county lies in the sandy-piney woods region and is more devoted to saw-mills than to agriculture. There are, however, many tracts of swamp and "Savannah" land that yield fine crops of corn and oats. Early fruits and vegetables are becoming profitable crops in the light soils of Wicomico along the railroad. And here let me say that every county I have described has a railroad line leading to a connection with the Delaware Railroad. The great wealth of Wicomico is in its fine water power and in its pine and cypress timber. The great cypress swamp of southern Delaware touches its northern line and these swamp lands when reclaimed are equal to Illinois prairies for corn. Between Wicomico county and the Chesapeake, Somerset occupies the space between the Wicomico and Pocomoke rivers. This county is mainly in the white-oak soil of tidewater, but runs into the swampy forest of the Pocomoke and Naseongo. Some of the flat lands of this county are being made to produce large crops of hay. The soil in many parts has been found particularly suited to the strawberry, and these berries and early vegetables are largely grown. In the region bordering on Tangier Sound sweet potatoes are a leading market crop. The agricultural interest of this county have suffered from the great wealth of its oyster

beds, oystering offering better wages to laborers than farmers can afford to pay. With increasing facilities for marketing early produce, Somerset must soon take a leading place in early vegetables when the culture becomes better understood; and if properly farmed, no part of the State is capable of growing larger crops of grass. The gum-swamp lands towards the Pocomoke, if kept free from surface water, ought to produce immense crops of the finest timothy. Some day these deep black swamp loams will send onions to Baltimore by the car load.

Eastward of Somerset and extending from the Pocomoke to the Atlantic lies Worcester, the one seacoast county of Maryland. A large part of this county is sandy and light soil interspersed with swampy tracts. On the upper waters of the Pocomoke are found fine tracts of rich swamp lands, and the drainage of these is rapidly extending. The best lands of the county are in the neighborhood of Berlin. Along the seashore to the Virginia line the soil is of a light character and easily improved. These seashore lands are fine for early trucking, but the east winds in spring time are very trying to delicate lungs.

I have thus given a hasty and imperfect sketch of the Eastern Shore counties of Maryland, a region teeming with everything to make country life enjoyable and farming profitable. As a recent writer remarked, it is a "Canaan of modern times, land flowing with milk and honey, towards whose shores the feet of her wandering sons are ever turned back!" Meet an Eastern Shoreman anywhere on this continent, you will never get one to acknowledge he has found any place like home. EASTERN SHOREMAN.

Mr. Massey and the Agricultural College—Insects.

Better and better grows the old favorite of the Agricultural Press. It has been in my mind and heart to say this much for THE AMERICAN FARMER for a long time, but many causes, chiefly ill health, have prevented. I have marked numerous paragraphs for comment, but I must first speak of what is uppermost in my thoughts.

I read Mr. W. F. Massey's address at the Baltimore County Convention with singular pleasure. He describes with a graphic pen the man who should have charge of the Agricultural College and Experiment Station, which should be, as he remarks, "essentially one." Why should he not be the man? I have no acquaintance with either of his competitors, but an intimacy of several years with Mr. M. gives me good reason to assert that he is a suitable man for the place, and equally strong reason to hope for great benefits to the farming interests of the State if he should be selected and consent to fill it.

The cabbage fly threatens to rob us of a great winter luxury. Cayenne pepper has been strongly recommended by the papers. I tried it. With a strong solution I washed every leaf of at least a hundred heads, but without effect. I then tried sprinkling from a perforated tin box. While doing this I captured a few of the worms and applied the pepper freely; they rolled over in it with as much apparent delight as a hen in a dry ash heap. After allowing them to enjoy their pepper bath about an hour I touched one of them with a little salt, (*cum grano salis*), not more than would lie on the point of a small pocket-knife. In an instant he stretched himself out for the "eternal sleep." I salted my cabbage and raised a crop; but caution is necessary. Too much salt is as fatal to the plant as is it to the worm. This season I shall begin with a weak solution of salt on the first appearance of the fly, and repeat it from time to time as its activity may indicate to be necessary.

One of your correspondents of a back number complained of the depredations of the "tent caterpillar," and recommended

to exterminate the tree (persimmon) upon which it feeds. We have never known so many as we had in this section in the past summer. To apply the remedy suggested by your correspondent, however, would sweep away our cherries, pears, apples and hedges, as all these suffer fully as much, if not more, than the persimmon. I manage to keep them somewhat in check by fastening a swab saturated with coal oil to one end of a light rod or pole ten or twelve feet long, by which, with the aid of a step-ladder, they may be reached and burned out. Or they may be blown to atoms with a bird gun loaded with powder only. In this matter of destroying insects, however, little can be effectually done without co-operation. I may clear my premises to-day, only to find them replenished soon by a fresh stock from those of my neighbor. HOWARD MEEKS.

Kent Co., Md., March, 1883.

What Grasses to Sow.

We would not advise sowing sweet scented vernal grass, (*anthroxanthum odoratum*) in mowing fields.

Though a very common grass in many old pastures and mowing fields, it is not esteemed very highly by the chemists who have analyzed it, nor are we sure that cattle are as fond of it as is supposed. Its habit of growth is in dwarfish tufts, and being an early grass, its seeds get ripe and are scattered over the ground when the hay is harvested, and in this way it spreads where timothy and other more valuable grasses die out.

We know of no objection to sowing a large variety of species of grass in pastures, as is often recommended by agricultural writers, but we do not believe in sowing many varieties together on mowing lands. Some of our best farmers will sow but one variety on the same field; others prefer three or four varieties. If timothy, (*phleum pratense*) be sown alone in July or August, on land that is adapted to it, a full crop can be cut the next summer, and if not cut too close, and the sod is top dressed with fine old manure, the timothy may be kept in a number of years, and will produce all that can stand up. No grass is superior to it, if rightly treated, and no other grass need be mixed with it. It is the main dependence of the farmers all through Northern New England, where hay is grown for Boston and other city markets. Red top (*agrostis vulgaris*) is another meadow grass that stands next in importance to timothy, and by many it is considered its superior.

If put on moist, rich loam, where it can have a chance to show its value, it will make a very heavy, thick growth, nearly or quite equal to timothy in height and weight, while the hay will be softer, finer, and generally preferred by stock, especially cattle. Timothy and red top are the standard meadow grasses of this part of the country. The clovers, the fescues, orchard grass, June grass, and many other varieties have their value in certain places, but they cannot take the place of these old favorites, which have stood the test of a century, or ever since grasses have been cultivated as a farm crop. Of the grasses named above, we should place sweet scented vernal grass very near the bottom of the list, although a little of it is very acceptable for its aromatic odor.—N. E. Farmer.

Hot-Bed Mats.

W. D. Philbrick gives in the *New England Farmer* the following directions for making these:

Hot-Bed Mats are made by hand upon a very simple frame. The frame is made of two pieces of 2x6 inch plank 6 feet 6 inches long, supported on legs 3 feet from the floor, like the legs of a common saw horse.

The planks are fixed one inch apart on edge by a block at one end, leaving a space

6 feet 4 in. x 1 inch in the clear, through which the mat is pushed down as it is made.

This is done by taking ten strings of tarred spun yarn about four feet long and laying them across the top of the frame at equal intervals, or about six inches apart; the frame should be slightly notched with a saw at the points where the strings belong when distributed evenly; now grasp two small bunches of clean, straight straw and lay them smoothly on the frame over the strings the butts of the straw being pointed outward, the heads will meet in the middle of the frame; if the straw is short so as to make the middle of the mat thin, a third and smaller handful of straw should be placed in the middle. Tie the strings down tightly, for which you will need an old pair of buckskin gloves to prevent the tarred line from cutting your hands; cut off the fingers of the glove so you can handle the straw quickly. Now push down this bunch of tied straw between the planks of your frame, and tie on another and so on, until your mat is about seven or eight feet long, when you will finish with a double knot; of course the strings will need to be spliced out several times by tying on a piece some two or three feet long, whenever they get short, and the room in which the work is done should be warm enough to make the tarred line pliable, or about 50°.

Live Stock.

Fine Imported Cattle.

The British steamship Ontario arrived at Baltimore, March 4, with a lot of very fine cattle. Of the importation Mr. Thomas Lawson, of the Missouri Land Company, Neosho, Mo., got 7 Hereford bulls and 5 heifers, 9 Polled Angus bulls and 5 heifers, and 30 Shropshire Down sheep. The balance of the cattle are for Boulter & Morgan, and Mr. Henry E. Yeomans, of Cheyenne, W. T., and are all Herefords, 26 bulls and 135 cows, heifers and calves.

The cattle were chiefly selected by Mr. Geo. F. Morgan, with the view of making a fine breeding herd in the Western country. The characteristics of the Herefords, red bodies, fine heads, white faces, regular horns and excellent beef qualities, are discernible in all. The Polled Angus, a Scottish breed, are perfectly black and hornless, smaller than the Herefords, and also excellent beef cattle. The whole lot of cattle are valued at about \$75,000. The cattle have been taken from the vessel and sent to quarantine, where they will remain until the middle of May. Mr. Yeomans returns to England by the steamer, which will on the next trip bring over equally as fine a lot. The advantages of Baltimore for the handling and quarantining of cattle are becoming generally known to importers.

General Utility Horses.

As a fast walking horse is of more general use than a fast trotting or fast running one, I would sooner own a horse which could walk five miles an hour than one that could trot a mile in three minutes or run in two minutes. I think our Agricultural Associations should offer equal premiums for such horses, fully as much as for speed in other directions. A horse that can walk five miles, can accomplish as much on the road, with 500 lbs. behind her as most horses that can trot 10 miles an hour with the same weight, and the horse that is permitted to walk will last as long again as the one that runs or trots.

The walking horse, however, shows his advantage over all others when he draws heavier weights in plow, wagon or cart, although under the saddle, the ease to the rider compensates for the spurts of the canter and trot.

Let us then improve this gait in our horses, not neglecting the other gaits, as much more can be gained by fast walking than any other gait. A.



GILDEROY 2107, THE PROPERTY OF DR. H. M. HOWE, BRISTOL, R. I.

Jersey Bull Gilderoy, 2107.

Above we present an engraving of one of the most noted bulls in this country. Gilderoy, now about seven years old, comes of a family distinguished for large butter yields, while his own get are equally famous for their inheritance of this trait. Five of his daughters, which comprise half of those that have come to milk, have given the following results when tested: Chrome Skin, 7881, 19 lbs., 1 oz. of butter in seven days as a three-year old; Daisy's Daughter, 15 lbs., 2 ozs. in seven days as a three-year old; Gold Mark, 10737, 14 lbs., 14 ozs. in seven days as a three-year old; Yellow Locust, 10670, 11 lbs., 9 ozs. in seven days as a two-year old; Lac-tine, 10680, 10 lbs. 14 ozs. in seven days as a two-year old.

Gilderoy's dam, Jeanne Le Bas, made 15 lbs. of butter in seven days, and his grand-dam, on his sire's side, Azalea, 1443, gave with her first calf 23 quarts of milk daily. Gilderoy has been a great prize taker. At the New England Fair, of 1879, he won the sweepstakes medal and first prize in 3-year class. The same year the first at the Rhode Island State Fair, where also, in 1881, he took first honors with show of five of his progeny, and where likewise he was at the head of the winning herd.

In our engraving, which is a faithful likeness of Gilderoy, the white represents what in the animal is a rich yellow color, this color being transmitted to his calves. For richness of color, indeed, and fineness of skin and hair, this bull is unsurpassed.

Gilderoy has just returned home from Mr. Havemyer's farm where he served ten of the finest cows in that gentleman's splendid herd.

Col. George E. Waring, Jr., in the *Bulletin* of the Jersey Cattle Club, wrote as follows about Gilderoy, in June, 1881:

"Gilderoy himself seems to me to be simply perfect. I can name no point which he is not first-rate. A careful examination now, in his five-year old form, fully confirms the good opinion I have had of him from the first. I gave such a strong expression to this opinion last year (*Bulletin* for Oct., 1880, page 85) that have no words left to make it stronger. If I had them I should use them.

"It seems to me that those who are buying at high prices, and who are sending to Jersey for the best stock of the Island, should at least take the time to visit Gilderoy at Bristol. He cannot be bought at any price, but his services are to be had at a price that bears no comparison to the value of an infusion of his blood. I venture the predic-

tion that within three years Gilderoy bulls (from approved cows) will sell for over \$1,000 each, and inbred Gilderoy bulls will fetch a higher price than will have ever been paid for any Jersey bull before. I know that this seems extravagant, but I have full faith that the event will justify it."

Keeping Sheep Requires Care.

Care is the first requisite, says a correspondent of the *Country Gentleman*, in all that relates to sheep. Instead, they usually receive the least attention of all stock. A sheep neglected is a non-paying animal to the extent that care is withheld. It is profitable according to the attention—exercised with judgment—that it receives, from which, if experience be added, the best results alone can be expected. Sheep are different from any other stock, and require treatment accordingly. They require attention, not only in the spring, but in the fall as well, to give them a start for winter. Failing in the fall, there will be loss, as with all stock. It is easier, as well as cheaper, to brace them up in warm weather than in cold. They must be fortified against winter, which they will pass then successfully with little or no extra care, increasing in growth, and will be larger and better in the end for growth. This reminds me of what an old and successful sheep raiser said: "You speak of care in the spring. The time to take care of sheep is from New Year to New Year. Then the sheep will not care for the seasons."

They want attention in summer as well as in winter, and more; the heat is worse than the cold for a sheep. Most of all they want good feed and plenty of it, with regularity. Fresh and sweet grass is what a sheep wants in summer. It cannot live and thrive upon bleached grass that has the strength washed and dried out of it. It wants green food in summer, it wants water also; and it wants shade. Nothing is better than an apple orchard and shed to run into when it wants to—and that it does if you salt it there as you should. Besides, it is a good place to "bait" sheep when the grass gets short. This you can do in a dry time, for depend upon it when they gnaw the field as bare as a common, and the drouth will kill what the sheep leave. Keep up the feed. A man must work if he keeps sheep as well as when he keeps cows. This is what makes the growth and makes the money. You want the food worked up, and the more the better; that is what sheep are kept for. Fat sheep make fat fleeces, fat lambs and bring

fat prices. There will be an income in the worst time, and when the good time comes, as it is sure to do, you will be prepared for it and sweep the board.

Sheep are much like people. Treat them as you would yourself. Give all the salt they want, all the water, all the shade, and all the grass and browsing and baiting—they like variety—and see that they are not worried by dogs. In winter continue the treatment as near as you can, for the sheep is the same, requiring the same. The nearest is to provide young hay never bleached, a little grain, a roomy shed, a roomy yard, water always at hand, and if you add a mess of roots once a day all the better. Keep a dry yard for them. If you have large sheep—the large kind I mean—you want more room, or divide your sheep into small flocks. The small Merinos keep together; they are used to it, but do not crowd. A sheep seen to as it should be will bring in more net money than in any other stock. There will be no risks to speak of with your lambs. If they come in the snow or in very cold weather, and the mothers are weak, the lambs will perish, as they might. This fussing with weak lambs shows that the business is badly managed. Keep the sheep strong and hearty and there will be no danger of losing either sheep or lambs, and the chances will be for twins, and that they will be brought up, and will be prime ones, bringing the top of the market, and often more, if you have the early, large lambs and all alike. I know what I say. Strong sheep work up fodder to advantage; only see that the food is in the right condition. Feed early and late in the winter, and take care that you do not waste. Give enough and no more. This keeps the appetite good.

There is one bad practice to avoid; it is the common one of letting your sheep run out late in the fall. Some keep them till winter. I have seen them paw in the snow to get their feed, and short feed at that; this is murder. Take in your sheep with the first cold rains, or sooner. This will favor the sheep and favor the grass. The dung of the sheep will help the growth, and in the spring you will get the early benefit. Do not keep sheep because you think it an easy way to make money, the money will not come. It requires work; it requires your time to see to the sheep, and this every day. Not every man is fit to keep sheep. Many try it and give it up, because they do not succeed. Sheep are poor dumb animals and must be taken care of. If you cannot do this let sheep alone.

Experiments in Feeding Swine.

Prof. J. W. Sanburn, of the Missouri Agricultural College, has recently published the results of some interesting experiments in feeding swine. He says:

Four sets, of four in a set, of year old shoats were weighed, October 13th, and put up to feed in separate lots with weighed rations for the following purposes, namely, to note the results of exercise in fattening shoats, the value of ground corn, as against whole corn, and of corn and cob ground together, against clear corn meal. The only available grain mill, with which to grind the corn, was one of the ordinary horse power mills or crushers. The mill turned out very coarse meal, or fine cracked corn with some meal. In the absence of old corn, new was fed. It is to be expected that new corn will give relatively better results, against new corn meal, than old corn, against old corn meal. Set one were allowed to run at large in a four-acre lot. The other lots were confined to pens.

Feed of lot 1—whole corn and grass.

Feed of lot 2—whole corn.

Feed of lot 3—clear corn meal.

Feed of lot 4—cob and corn ground together.

Sets.	Weight October 13.	Weight November 13.	Grain in 31 days.	Pounds food eaten.	Food required for lbs. grain.	Grain per 100 lbs. food.	Value per bus. corn live pig 7 cts.	Cost per lb. gain.
1	lbs. 633	lbs. 853	lbs. 321	1,335	4.16	24.3	91.2	2.6
2	600	929	320	1,397	3.77	26.5	103.5	2.3
3	641	990	268	1,253	4.07	21.7	83.8	3.7
4	650	834	184	1,185	6.41	15.5	60.8	8.9

It will first be noted that there is an enormous profit shown in this period of feeding. The price of fat hogs used is that given at the time of the trial, and is larger than now, yet the columns of cost of a pound live pig show that, at the present price, corn condensed into pig brings twice as much as upon the market. This same price for live fat pigs is used in the next feeding trial, that the figures may remain relative. Secondly it will be noticed that the shoats running at large and consuming grass, gave no returns for the grass, and scattered their excrements where not desired. This is deemed important as the farm needs fertilizing. They lost in exercise all they gained in grass feed. It should be noted that the grass was fresh and green here, at this period. Thirdly, I was disappointed in the grinding although little was expected of the coarse grinding given.

SECOND PERIOD OF THIRTY DAYS.

I succeeded in finding an owner of a burr mill driven by steam, which would grind down fine, as for family use, our corn, both the whole corn, and the corn and cob together.

Sets.	Gains in 30 days.	Lbs. of food eaten.	Food required for lb. gain.	Gains for 100 pounds food.	Value received per bushel.	Cost per lb. gain.
1	lbs. 307	1,372	5.96	16.8	65.87	3.71
2	178	1,133	6.30	16.8	82.16	3.93
3	245	1,329	5.43	18.4	73.31	4.35
4	120	1,140	6.58	16.6	63.16	5.73

THIRD PERIOD OF 17 DAYS—FEED AS BEFORE.

Sets.	Gains in 17 days.	Lbs. of food eaten.	Food required for lb. gain.	Gains for 100 pounds food.	Value received per bushel.	Cost per lb. gain.
1	70	483	6.94	15.7	61.63	3.96
2	96	534	5.56	17.9	70.49	3.47
3	125	614	4.91	20.3	79.80	3.94
4	92	568	6.17	16.2	63.19	5.65

(*) In estimating the cost of a pound of gain with the ground feed, the cost of grinding and carrying to mill is estimated.

First, it will be noted that during the second and third period more food is required to make a pound of growth than during the first period. This fact may be ascribed to three reasons: approach of maturity, colder weather, and removal from first effects of change from grass to full corn feed, although the shoats were on nearly full corn feed before the commencement of the experiment.

Secondly, it will be observed that the fine ground feed did very notably better than

the coarse ground feed of the first period, and that for sections where corn is high, or in season of high prices, grinding pays. It gives no profit when corn is rated as above at 35 cents per bushel when fed green, but might if fed after one year's housing, or when well dried.

Thirdly, very meagre returns are received for the cob of the ear when fed to a fattening pig. This is contrary to several results received by me at the New Hampshire Agriculture College farm, where, for a growing pig, 100 lbs. clear corn, on an average, gave a gain of 28.7 lbs. growth, and the corn and cob ground together gain 28.5 lbs. I have never found cob meal as valuable for fattening pigs as for growing pigs. It was found in feeding, that the corn-fed pigs drank very much more water during the first period of the trial, and only a little more during the final period. I have thought that the meal-fed pigs would give a greater per cent. of dressed carcass than the whole corn fed pigs. This matter, and others, I desired to have introduced could not before want of opportunity. These trials, with the growing pig, and with a larger range of food materials, will be carried on in the future.

Warts on Horse's Eyelids.

I have a very fine mare with an unsightly and I fear dangerous excrescence just above the right eye; would be glad if you would tell from my description what it is and how to treat it. I noticed it about two months ago for the first time. It appeared then to be two small lumps about as large as cherry seed and had something of the appearance of a wen with the skin rubbed off. I took them to be warts and applied lunar caustic, but every day or two she would rub the crust which the caustic formed off, and they would appear smooth and whitish looking and bleed a good deal. I stopped the caustic after two or three applications, and since then they have increased in size until they are each as large as a good sized hickory nut. A crust or scab still forms over them, but the least touch will take it off and they appear whitish and bleed; they are not at all sensitive and are small at the base, they are on the bone just over the right eye but have not effected it as yet. If you can tell me how to remove them I will be very much indebted to you.

C. C. WILSON.

Queen Anne's County, Md.

REPLY.—If the warts are narrow at their base it is best to remove them by excision or ligature and treat the hemorrhage resulting from the operation with tincture of perchloride of iron or compound tincture of benzoin. When warts are broad in the bases, strong acetic acid is the best application.

D. LEMAY, V. S.,

150 W. Fayette street, Baltimore.

Salt for Sheep.

I am pleased to see that writers and flock owners are getting awakened on this important subject. If farmers and stock raisers would make larger drafts on the salt barrel, I think disease would make less frequent inroads on their pockets. If sheep raisers would see that their flocks received all the salt they wanted, there would be fewer calls on the pelt buyer. I have practiced allowing sheep free access to salt for three years, and find it an advantage to the flock. Sheep can be allowed free access to salt without injury, if they are accustomed to it gradually. They should be given a little salt every day, until they will leave a part of it, when they may be allowed free access to it in any quantity, without danger.

When sheep are confined to dry feed, it will be an advantage to add a little flowers of sulphur to the salt—say one pound to six or seven pounds of salt—it will prevent the stretches. I also think it will help to rid a

flock of ticks, as my lambs, when I first commenced to use it, were badly infested with them—so much so that part of them were very ragged from rubbing and biting themselves. The next spring, when they were shorn, very few ticks were found, and they have not been troubled with them since. The sheep had not been dipped, nor any other method used to get rid of the pests.—*Cor. Nat. Live Stock Journal.*

The Dairy.

Influence of Food on Milk.

N. Y. AGRICULTURAL EXPERIMENT STATION
BULLETIN NO. 33.

The influence of the character of the food used upon the character of the milk, has received during the past two months considerable attention at the Station. It seems certain that the influence of the food is to be detected more readily in the churning of the butter from the milk, than from the study of the actual butter-fat in the milk. Thus, during forty-eight days' trial, from January 2d to February 18th, under different kinds of food, we possess an analysis of the milk yielded daily, and a determination of the butter obtained by churning from the daily yield. The percentage of fat in the milk, according to analysis, varied from 4.47 to 5.99; the per cent. of butter, as obtained by the churn, varied from 2.40 to 5.97, and we thus see from these figures that the variation in the butter obtained is here greater than is the variation in the fat in the milk.

Taking the average of the last three days of each period of feeding, in order to obtain the influence of food upon the butter and the fat, we have the fat percentage varying from 4.87 to 5.87, while the per cent. of butter obtained varied from 3.42 to 5.78. Or, expressing these facts in another form, while the variation between the maximum and minimum determinations for the fat was but 19 per cent. from the average, the variation in the amounts of butter obtained was 52 per cent. from the average. However we investigate our figures, the same fact appears evident, that at first we were inclined to ascribe this difference in the butter obtained to the imperfection of the process of churning. Upon consultation, however, with experienced butter-makers, we found that this fact of the variability of the milk in the churn, from day to day, had been already noticed. Thus, during the famous trial of the Jersey cow, "Bomba," in 1882, when 21 lbs. 11 ozs. of butter were obtained in seven days, from 205 lbs. 8 ozs. of milk, while the average percentage of butter obtained for the seven days period was 10.56 per cent., yet the daily percentage varied from 9.43 to 12.34 per cent., or a variation of 27 per cent. from the average.

In Mr. F. S. Peer's trial with his phenomenal cow, "Mollie Garfield," during the month of July, 1882, the eight churnings yielded 82 lbs. of butter from 901 3.4 lbs. of milk, or an average of 9.09 per cent. of butter. The variations were 7.46 and 11.47 per cent., or 44 per cent. from the average. In another experiment, reported in the *Practical Farmer* for 1875, 336 lbs. of milk yielded 15 lbs. of butter; 476 lbs. of milk yielded 15.62 lbs. of butter, and 476 lbs. of milk yielded 21.37 lbs. of butter. Expressing these in per cents. we have 4.46 to 3.28 and 4.49, averaging 4.03 per cent. with a variation from the average of 80 per cent. Did we know the composition of the milk of these various trials, we then would be in a condition for a more accurate discussion. We, however, can infer from our own experiments as given above, that the percentage of butter obtained varied far more than did the analysis of the milk.

Whether these results of the Station are comparable with the figures obtained from

the ordinary dairies, or from phenomenal cows, we do not absolutely know, and we recognize the difficulty and danger of generalizing from a single herd; yet Mr. Spaulding, of Canton, the proprietor of a creamery noted for the quality of its products, informs me that this daily variation is to be found in his practice, and he has, moreover, agreed to furnish me with the figures of ten consecutive days of his dairy accounts the ensuing year, in order to give figures for illustration. While the phenomenal cow, "Bomba," yielded 10.56 per cent. of butter during the seven days of her trial, the factory yield of the State seems, so far as our data will determine, to be slightly over 4 per cent. of butter, or, if we exclude the salt used, about 4 lbs. of butter to the 100 lbs. of milk. In 1871, six factories in the state report from 3.97 to 4.83 per cent. of butter, while from 1871 to 1878 inclusive, the average for 16 factories was 4.33 per cent.

We may, therefore, infer, until further data shall modify our opinions, that whatever herd yields to the butter-maker less than 4 lbs. of butter to the 100 lbs. of milk, is below the average product of the State, and whatever herd yields more than this quantity is above the average for the State. The Station herd during the trial, yielded, upon the average, with different foods, 4.48 lbs. of unsalted butter to the 100 lbs. of milk. While with this average for the period, yet the influence of food seems to have varied the product from 3.64 lbs. of butter to 5.47 lbs. of butter to the 100 lbs. of milk.

We seem, hence, able at present to assume that the yield of butter from a herd is governed by the breed or by the selection of the animal, and by the character of the food supplied, and that the influence of the food seems more marked toward influencing the absolute richness of the milk.

Taking the last three days of each period of feeding, in order to eliminate the influence of the mere change of food which shows during the first day or so, we can illustrate the influence of the food by grouping our results in the following table:

Period.	Fat in milk.	Butter obtained.
1.....	5.21	5.12
2.....	5.87	5.78
3.....	4.90	3.42
4.....	4.87	4.16
5.....	5.03	3.93
6.....	4.91	4.53
7.....	5.04	4.88

This table of percentages may be supplemented by another, giving the actual amount of fat contained in the day's milk, as determined by analysis, and the actual amount of butter as obtained by means of the churn:

Period.	Actual fat in milk.	Actual butter obtained.
1.....	46.1	45.5
2.....	48.9	47.3
3.....	49.2	34.3
4.....	48.8	37.5
5.....	39.3	30.7
6.....	38.5	28.3
7.....	38.6	24.8

In this last table we notice that in period 1, we come within 9 1/2 ozs. of obtaining as much butter as there is fat in the milk; in period 2, within 14 ozs., etc., and it is important enough to justify quite thorough study of the economical effect of the food supplied by the butter farmer.

The character of the food used during the different periods, and further consideration will be left for a succeeding bulletin.

E. LEWIS STURTEVANT, Director.

How to Raise Heifer Calves for the Dairy.

An inquirer of the *National Live Stock Journal* says: "I wish to raise several heifer calves for the dairy, and want to know how to feed them so as to make the best butter cows? What should I add to skim-milk, and how much and how shall I feed them the first winter? At what age should they come in? Would half-blood Jerseys be better than our common stock?" These questions, says the editor, are short, but

might form the text for a treatise on butter dairying.

1st, there is no food that will make the "best butter cows" out of heifer calves not inheriting good butter-producing qualities. Proper feeding will develop a first-rate animal of its kind, but it must follow out mainly its inheritance. If the calf is from a dam, grandam, great-grandam, etc., of inferior butter yielding qualities, and from a like sire, grandsire, etc., no food will create these lacking qualities in the calf; but the best feeding will improve the milk and butter yielding qualities of the dam, if she has been poorly fed. Good feeding stimulates all the secretions, and it will improve the milk secretion, and by feeding properly for several generations, may effect an improvement of considerable importance.

In developing heifers for the dairy, the food needs to be of such a character as to stimulate the growth of the muscles and frame, rather than the deposit of fat. Food containing a large proportion of oil or starch is likely to cause too free a deposit of fat. In feeding well for the development of muscular and osseous systems there will be quite sufficient deposit of fat to line the muscles and cushion the joints. The heifers need a muscular, rangy frame, a strong, active, digestive system, and to this end she must have a good appetite. A heifer calf that is a persistently dainty eater should be disposed of, as a profitable cow must be a good eater and digester. It is the digested food that makes the milk and butter.

2. Skim-milk is an excellent food upon which to raise a good heifer calf. It is deficient in oil, and therefore sometimes produces constipation. The best antidote to this is to mix a small quantity of boiled flaxseed with the milk. This is rich in oil and one-half gill per day will keep the bowels in good condition, and increase the growth of the calf. This would require one peck of flaxseed to last a calf four months. The flaxseed in this case is only used to counteract the tendency to constipation, but it will be well paid for in the growth of the calf. If, after the calf is fifty days old, the feeder wishes to further improve this ration, let him add one pound per day of wheat middlings or shorts. This will supply the extra food required by the calf at that age; and at eighty days old another pound of middlings may be added. Continue giving the skim-milk, if you have it till the calf is at least six months old.

The first winter the heifer calf may be fed on early-cut clover hay, and two pounds of middlings, or two pounds of oats and ground corn together. If one is located where ground feed is not easily obtained, unground oats may be very safely fed to a calf six months old. Two quarts of oats with good hay will produce a very good growth with good shelter. Corn is too heating to be fed alone to so young an animal. Another very good ration for a heifer calf the first winter is one and one-half to two pounds of middlings, with one-half pound of linseed-oil meal, with hay. The feeder may give a great variety of rations, such as corn and peas, corn and oats, corn and buckwheat, corn and rye, corn and millet, or any two of these, but they should be ground.

HEIFERS SHOULD COME IN AT TWO YEARS.

The proper time for the heifer to come in is at two years old. She may be coupled at thirteen or fifteen months. If the heifer is well kept she will be in heat so as to come in at two years. The best opinion among the dairymen now is, that the heifer is likely to make the best cow to come in at two, instead of three years. The milk secretions should be developed early, but the second calf should not come in less than fifteen months after the first, but the first milking season should be twelve months. This long milking period for the first, is thought to

give the heifer the habit of holding out her milk well.

GRADE JERSEY OR COMMON STOCK?

The answer to this question depends upon selection. A selected common cow is better than a poor Jersey. But a well selected Jersey is much better than a selected common cow, because the Jersey has been bred for milk and butter for a great many generations, and much more likely to breed like herself than a common cow.

In breeding grade Jerseys, a pure-bred Jersey bull is used upon common cows. Now, if this Jersey bull is from a large butter-yielding dam, grandam, great-grandam, etc., his grade Jersey heifer calves will be likely to be a great improvement on their dams, even if these are considered good butter-yielding common cows. The writer of this has bred ten such grade Jersey heifers, and found their average product of butter to be 1 pound of butter from 16½ pounds of milk, while the average of the dams was 25 pounds of milk to 1 pound of butter. Here was a gain of 34 per cent. on the first cross. And we found these grade heifers much more uniform than we expected. They ranged from 14½ pounds to 18½ pounds of milk to 1 pound of butter, and this lowest amount of milk, 14½ pounds, is probably a better yield than is averaged by pure bred Jerseys.

Another "Official" Test of Jerseys.

Mr. V. E. Fuller, President of the Jersey Breeders' Association of Canada, has requested that body to take charge of a public test of two of his Jersey cows Oaklands Cora 18853, and Lucella of Kent, 8892. Mr. John Easterbrook, an intelligent gentleman, in no way interested in Jerseys, has accordingly been appointed to supervise the trial and take possession of the milk at the time of milking, keep it and the cream safely under lock and key, personally see the churning and attest the result thereof under oath.

Mr. Fuller does not claim that these two cows can either of them reach the high points that have been attained by many of the Jerseys; but as much doubt has been expressed throughout Canada of the reported yields of Jerseys, this course is taken to set at rest the vexed question of the ability of the Jerseys to perform what is claimed for them—namely, their ability to exceed two pounds per day.

Poultry Yard.

The Dust Bath.

Those knowing the value of the dust bath for fowls, summer and winter, consider it essential to successful poultry keeping. And how few of our poultry keepers who give their fowls a chance to revel in a heap of loose earth, sand or ashes during their confinement in winter.

The dust bath is to poultry nature's cleanser and renovator and is as necessary for cleansing the feathers of fowls from vermin and effete matter as a cool pure water bath is to the person of cleanly habits.

Poultry with free range in summer will be able to help themselves to a dust bath if they have to roll in the newly made flower or vegetable beds. With fowls in confinement the means and material must be supplied. A dry mass of fine sand or road dust, fine loam or coal ashes will do. This mass of dry material should be under a shed to protect it from rain in summer time, and in the sunniest corner of the hen house in winter.

If we watch the habits of all wild game birds, we can see them in the open clearings and on the country roads, at early sunrise, dusting themselves as rapidly as possible; and if we give our domestic fowls a chance, we can see an instinctive desire in the young as well as the old to scratch, and pulverize

the earth if in lumps, and will then adjust their feathers, and by the rapid action of their claws are enabled to dust thoroughly, and by shaking rid themselves of lice. The dust bath is made more effective by putting a handful or two of sulphur and carbolic powder through the mass and mixing them together.—*American Poultry Journal*.

Items.

[From *American Poultry Yard*.]

Sprinkle a little flour of sulphur in nests of setting-hens.

Put setting hens in quiet, dark places, away from disturbance.

Sprinkle eggs that are about to hatch with lukewarm water.

Select the best-shaped and largest eggs from best layers for hatching.

Geese-nests should be under cover and sheltered from the cold winds, the exposure towards the sunny south, and the place retired.

Very young ducklings are tender at first, and should neither be allowed to go into cold water nor be exposed to chilling winds, while they are under twenty days' old. Such exposures cause cramps, and they often die suddenly from these assaults.

When you think you can to advantage make broilers for market, making eggs but of secondary importance, many have every confidence in Light Brahmas, for they have had them pay far better, on an average, than any other variety. There are very many desirable qualities justly claimed for them.

By abortion is meant the dropping of an egg out of time, whether perfect or not. The causes of diseases are not always to be detected; probably constitutional predisposition may act in some cases. Fright and excitement are sometimes operative; and a tyrant among the flock, by driving the hens about, will bring it on.

Put a teaspoonful of sulphur in the nest as soon as hens or turkeys are set. The heat of the fowls causes the fumes of the sulphur to penetrate every part of their bodies; every louse is killed, and as all nits are hatched within ten days, when the mother leaves the nest with her brood, she is perfectly free from nits or lice.

Chickens, when first hatched, should not be hurried out of the setting-nest. For twenty-four hours at least from the time when the earliest commence to show themselves, it is better to leave them under or with the hen-mother. They need no food, for from a day to a day and a half usually. When they get strong enough to venture from beneath their mother's wings, it is time to move the brood.

Dressed poultry should not be packed for transportation until entirely cold. Then it should be laid in clean straw, breast down, keeping wings and legs close to the body. See that there is no discoloration of blood on the skin. If the heads are removed pull up the skin of the neck and tie it over the severed portion with a bit of strong thread or twine. Never cut off the claws or spurs of old hens or cocks with the idea of passing them off for young chickens; purchasers are generally older than the most ancient specimens of your poultry yard, or if perchance the customer is green, that is no excuse for dishonesty.

Hens vs. Hogs.

In reply to a correspondent, who has doubts about "poultry and eggs being a cheaper food than pork," we would say that it has been repeatedly established by actual experiment, that a given amount of food will produce more weight of flesh when fed to poultry than when fed to swine. As to the qualities of flesh produced, as human food, there surely ought to be no controversy. The delicacy, purity and healthfulness of the one, and the want of these characters in the other, makes all comparison odious. But

it is in egg production that the hen asserts her supremacy. The amount of feed necessary to make a pound of pork will make two pounds of eggs—the best known human food. In the name of all that is good to eat, how can the hog and the hen be compared? We can live without pork; but without eggs, deliver us! As surely as the physician's occupation would be gone if deprived of calomel, quinine and opium, would the cook be bankrupt without eggs. Both for virtue and economy, the hen surpasses the hog too far for comparison.—*S. Western Poultry Journal*.

Horticulture.

Management of Grape Vines.

Grapes first coming in bearing should not be permitted to perfect large crops of fruit while young. It is excusable to fruit a bunch or so on a young vine, "just to test the kind," but no more should be permitted till the vine has age and strength. Vigorous growth and great productiveness are the antipodes of the vegetable world. Encourage as much foliage as possible on the vines, and aim to have as strong shoots at the base as at the top of the cane; this can be done by pinching out the points of the strong shoots after they have made a growth of five or six leaves. Young vines grow much faster over a twiggy branch, stuck in for support, than over a straight stick, as a trellis, and generally do better every way. Where extra fine bunches of grapes are desired, pinch back the shoot bearing it to about four or five leaves above the bunch. This should not be done indiscriminately with all the bunches. Too much pinching and stopping injures the production of good wood for next season. These hints are for amateurs, who have a few vines on trellises; for large vineyard culture, though the same principles hold good as far as they go, they will vary in their application.

Fine, rich color is always esteemed as one of the criterions whereby to judge of the excellence of a fruit. Sunlight is of first importance; but it is not generally known that this is injurious when in excess. In a dry atmosphere, with great sun heat, where the evaporating progress goes on faster than the secretive principle, what should become a rich, rosy blush in a fruit, is changed to a sickly yellow; and the rich jet black of a grape becomes a foxy red. Some grape growers of eminence, in view of the facts, shade their vineries during the coloring process; but others, instead keep the atmosphere as close and moist as possible. The latter course detracts from the flavor of the fruit. The best plan is that which combines both practices.—*Gardener's Monthly*.

Apple Trees That Resist or Escape Frost.

One correspondent, James Flitz, writes as follows to the *Rural Messenger* on this topic:

This is a subject of much importance to fruit-growers in many parts of the Southern States or Western whose situations are liable to late spring frosts that destroy the first buds. There are various devices to escape this—mainly by retarding vegetation—such as packing snow beneath the trees and covering heavily with straw or leaves—selecting cold, northern exposures—keeping the trees in a vigorous habit and condition.

The best way to avoid the destruction of the fruit buds in conjunction with these, or without such aid, is to select from the nurseries such trees as have the permanent habit of blooming late. Chief among these we would name the Rawle's Genet, (Never Fail.) The buds of this popular winter apple appear as if dead when all other trees in the orchard are in full bloom. It averages at least two weeks later than most varieties, and the touch of spring does not open the blossoms until other trees are dropping their bloom and forming fruit. This is an excellent culinary or eating apple, either for family use or

for home markets. It is of French origin, having been introduced by Mr. Jefferson when Minister to France. It is widely cultivated all through the South, Southwest and West, and is very productive. The only difficulty that in some locations attend it, is its liabilities to rot on the trees. Where this does not occur no Southern or Western orchard should be set without a row of this "never-failing sort."

There are a few other late bloomers that are profitable: The Ben Davis should come next. This is a popular eating and market apple, and is extensively raised without reference to its quality or late blooming for which it is notable. The Rome Beauty, from southern Ohio, is a new and splendid apple, also a late bloomer. The Green Cheese is equally late and very good. The Water Apple of Pennsylvania is among the latest and best—blossoms at least two weeks later than most sorts. (The Northern Spy is another, but does not suit our climate). We would suggest the planting an orchard with winter fruit; much better could not be selected either for market or home use, which would in frosty apple regions enable the farmer to compete with those having more favored locations—and, instead of the entire failure of apples every two or three years, he would realize every year an abundance of both for home use and market; especially if he planted liberally, fed them well and gave proper attention. To be sure of this, he should also select for his orchard a few annual bearers. These are so much better for regular crops than biennials that no collection, however small, should be without some of them. We may also give a list of some of these in time for planting. It is a bad thing to have trees crowded with fruit one year and the next scarcely any—and, thinning the fruit to effect this is expensive if not impracticable.

Trimming Hedges.

Those who have Osage-orange hedges must remember that this is the season when attention must be given to trimming them. If they are neglected at this time, it will save time and money to enter into a contract at once with some one to grub them out and burn them, for there is not a greater farm-nuisance than a neglected Osage-orange fence.

It may be that we may include all hedges as well as Osage in this list, both as regards the necessity of pruning, and as to the nuisances they become if not cut from time to time. We believe that the hedge that is capable of taking care of itself and of going through the world without sowing any wild oats, has not yet been found, though it will perhaps come up some day. So far we must trim to keep nice.

Those who wish to have something extra nice use hand shears. A man can do a great deal of good in a day with these, if they are used early in the season before the young growth gets hard. It makes an even job. Where there is much to be done the scythe will answer very well. They say in the West, where hedges by the score of miles have regular hedge-trimming machines, but these we have not seen.

It is conceded now that a good hedge cannot be had unless the hedge is cut on a slope on each side, that is there is really but two sides to the hedge, instead of three as when they are cut with one flat top, and to upright sides. Besides this, it is so much cheaper and easier to do it in this way. Two sides on fences cost less than three; besides on the square top plan the scythe cannot be made to work at all. It is very seldom that the best plan and the cheapest plan work as well together as they do here.

Some people leave the hedge-trimming till the middle or the end of July. This is in order that only one trimming shall be required, as the hedge pushes out but little

after this; but the wood is tough then, the labor hard, and it is doubtful whether much is gained by it. Besides, though the early cutting necessitates another trimming in September, the hedge is much better for it.

In regard to young hedges, we note in some quarters that it is recommended not to cut them at all for two or three years, but to let them grow as they will, cutting them back after that to the ground, and moulding them the following year. We do not know any hedge in this section treated in that way, so only give this hint as it is current.—*Germantown Telegraph*.

Items from the New Jersey Horticulturists.

A report to the *Germantown Telegraph* gives the following from the doings of the New Jersey Horticultural Society.

The first topic considered was "Asparagus Culture." Edward Beekman described the methods of the most successful cultivators, and compared wild and cultivated plants. These plants cut from year to year have more crowns than the uncultivated. The carpenter's chisel was the best instrument for cutting. In 1881 they cut forty-two days. The product of three acres was as follows: Best ground, 1670 bunches sold for \$330 gross; medium acre, 1540 bunches for \$317; poorest acre, 1470 bunches for \$385. Bunches are best and most economically tied with South American palm, the refuse from the hatters. The manure is applied after the season of cutting. Stalks have grown six inches in eight hours. The green stalks cut above the ground sell the highest. Crowns want to be six or seven inches down in the ground. A bed twenty-two years old is still being cut, but the stalks are small. The varieties cultivated are Long Island Purple-top, Conover's Colossal and Dutch Giant—the first preferred.

The Sharpless strawberry was reported unprofitable without very high culture. So of the Warren. The Mount Vernon is a failure on dry soil. James Vick, like the Captain Jack in foliage. Manchester highly commended. Seth Boyden and Vineland Seedling commended by members. The Glendale, Jersey Queen and Crystal City all do better the second year than the first. The last is extra early and small. The reports on the Big Bob were conflicting. Prince, a late berry, much like the wild strawberry. Hart's Minnesota and Bidwell, good for amateurs.

C. L. Allen's paper on "Lilies and their Culture," called attention to the beauties of this class of flowers, and the parts of the world where they are found. He said the principal cause of failure is due to misconceptions in regard to the varieties and their hardiness to withstand climate changes. It is freezing and thawing destroys them. Winter protection, such as is given by the winter snows of Siberia, is needed—mulch may save them. Too much water is not congenial to success. A lattice or awning to protect against excessive heat in summer is also a means of success. Soil should be adapted to each sort, and manure not come in contact with them, as it may produce a fungus. The sooner they are planted after they are dug the better. Frequent removals are undesirable.

The most successful methods of training the grape vine were discussed. The President recommended some way of so supporting vines that the new and bearing wood shall hang over like the limbs of a weeping willow, and so obviate the necessity of summer pruning. Mr. Meech thought the prevailing method in Vineland of using a stake to each vine, well adapted to secure that result.

Nut culture was presented in a letter read by the secretary, in which it was said that the Spanish chestnut does best by grafting. Potash was recommended as the best means

of preventing and destroying the fungi on our small fruits.

To fertilize apple trees one recommended black muck; another, returning pomace to the trees; another marl; another, keeping hogs in the orchard for the double purpose of fertilizing the trees and destroying the vermin. Rot in apple roots was attributed to too high manuring, to too much water in the soil, and to their freezing.

The best method of destroying quince-borers was asked for, and Mr. Meech, recommended clean culture and a wrapping of thick paper around the collar of the tree where the *aspidia bivitata* deposits its eggs. If they are already in the tree, dig them out of their holes by running in an annealed wire or whalebone. Mr. Goldsmith white-washed the trees to keep them out. Mr. Ege kept them out by piling a mixture of salt and ashes around the trees.

The Kieffer Pear was tested and discussed. The points in its favor were that it is very hardy, has a fine, showy appearance, ripens late in October, and early in November and keeps well, and is excellent for canning. The points against it were that it is a very poor eating pear, with a tough, thick skin, and that it is inferior to those in the rejected list of the American Pomological Society. The flesh cuts like a turnip, and is coarse. Many are likely to be disappointed.

Inquiry was made for the friends of the English sparrow, and it was voted as the sense of the meeting that they should be exterminated.

Raising Onions—Preserving Celery.

Messrs. Editors *American Farmer*:

The onion crop harvested last August, and for which the sets were planted the previous fall, proved to be an excellent one; the yield was one hundred and nine bushels from less than one-quarter of an acre, and the bulk of the crop was of large size and good form. Want of time to properly attend the prevention of seed stalks from growing was the cause of some badly shaped bulbs, yet even these attained to fair size and proved good for use, the most of them having developed the seed stalks at the side of the bulb, from whence they could be easily removed. By sowing the seed in August or planting small sets in September there would no seed stalks shoot, and consequently we might look for the best onion crop that can be grown in this climate. There is no necessity for winter protection.

I have never met with success in spring sowing of onion seed. Last spring I sowed one-eighth of an acre to Wethersfield Large Red, and although these received good culture the yield was only ten bushels of small sized bulbs, none of them over two and a half inches in diameter, and some of them small enough for sets.

I had a new experience in preserving celery the past winter. The spring of 1883 opened without any one having been engaged as farm manager, and I was obliged to undertake the working of a three hundred acre farm in addition to a very large garden, and being without experience in this line I had to give to it most of my time and curtail garden operations as much as possible; so when it came to planting celery I put out the whole crop in single rows, and except a small quantity banked up for early use, I simply cultivated to the point of "handling" once, and then left the crop to itself. When the time arrived for storing away for winter, I was so overwhelmed with work that with the force at command I could not clearly see my way through it; but the time came at last when celery had to be secured or lost; I secured it. Selecting a place in the midst of the growing crop from which I thought the water would drain naturally, I started the banking up of two adjoining rows and the lifting of the balance of the crop. I

then began storing by putting a layer of plants eight inches deep upon the incline formed by banking, the roots down and tops level with that in the banked row; this plan was carried out on the inside incline of both rows; I then filled in sufficient soil (all leaves would have been best) to firm the roots, and filled to the top with forest leaves; all further work upon the celery as thus stored was the same as for the bed system.

The celery kept well, far better than I ever succeeded in keeping it in any other way; yet there is one great drawback in this, as in all methods I have tried for keeping celery grown in single rows, and that is if it is not blanched when put away it does not improve much in this direction afterward. In the single row system we get heavy heads of celery, but when we take it from the trench or wherever it was put to keep over winter and find ourselves obliged to cut away all but the hearts which have been forced in the trench, of what profit is the extra weight of the crop; these hearts are of the finest quality, and delicious eating to those who can afford them. I now think celery can be taken up and kept through winter, but must wait for some one to tell me how to blanch it.

I would like to inform the correspondent who some time ago expressed his fears of a Saurkraut famine on account of failure of late cabbage and the ravages of the cabbage worm, that I have made a superior article from Jersey Wakefield matured in July, and all that is required will be a little more pounding and heavier salting than for that made from late cabbage.

CHAS. E. SANFORD,
Gardener, Mt. St. Mary's College,
Frederick county, Md.

Cauliflowers.

The growing of cauliflowers is receiving more attention than formerly, particularly so the earlier varieties. The crops of Dwarf Erfurt and Snowball begin to come forward in June; and these, with the later sorts, are in market almost without intermission, until November. Remarkably fine cauliflowers, in great abundance, were grown about Boston and elsewhere the past season, notwithstanding the long and severe drought, which is particularly unfavorable to their culture. Cauliflowers require very high cultivation, even more so than cabbages, and plenty of moisture. Whether grown in the kitchen-garden, or upon a large scale, the crop is a paying one. The demand is evidently rapidly increasing, and there is no more delicious vegetable grown. Cold-frame plants are probably the best and the hardest for early crops; the frames, however, need rather more protection during cold nights than is required for cabbage-plants. Seed sown in hot-beds in February will produce plants that are not much, if any, inferior to cold-frame plants. They should be transplanted once, before setting out in the open ground, and also should be gradually hardened by exposure; in this way they may be in condition to set out as early in April as the ground will permit. Set the early sorts about two feet by fifteen inches, and cultivate the same as cabbages. Where irrigation is practicable, great advantage is thus obtained during the drought. For late cauliflowers, sow seed in open ground, from the middle of June, in hills, the same as directed for late cabbages. Thin to one plant in each hill; this avoids the drawbacks resulting from transplanting in a dry time. When the plants first appear they are liable to the attacks of a small black fly; guard against this by frequent dusting with plaster, which apply in the morning while the dew is on. When the heads are forming, tie the leaves together at the top, thus avoiding discoloration by exposure to the sun.—*American Cultivator*.

How to Start Small and Delicate Seeds.

Fill a common flower pot with fine loam. By jarring the pot, set the soil moderately firm, leaving the surface finely pulverized. On this scatter the seeds and jar the pot again to settle them into the crevices of the soil. Then place the pot in shallow water in a warm, sunny window or plant-house, and see that sufficient water is kept in the saucer or basin in which the pot rests to keep the surface of the soil in the pot sufficiently wet. Any fancy pot with saucer attached will answer equally well if the drainage hole is sufficiently low.

Treated as here suggested nearly, if not quite, all good seeds will grow, even those which happen to remain in full view on the surface of the soil. The plan is easily adopted and necessitates no troublesome expedients to prevent the washing out of the seeds or the packing of the soil as when water is applied directly to the surface as is usually done; and no glass need be placed on the top of the pot, for by capillary attraction the surface of the soil will keep sufficiently wet if enough water is kept at the base of the pot.—*Rural New Yorker*.

The Portulaca.

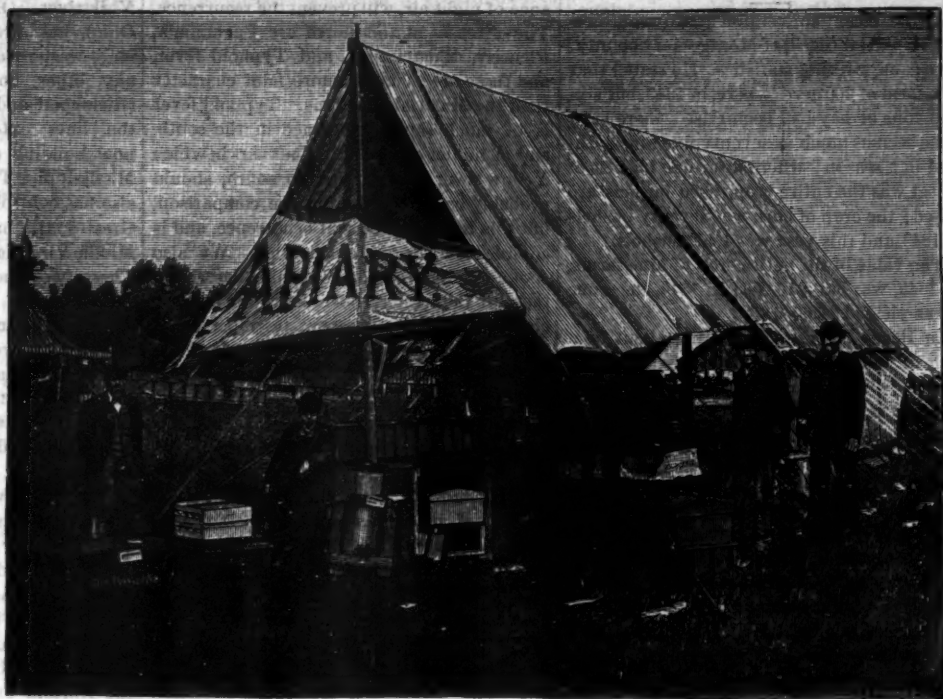
This popular annual should be one of the few that first engage the attention of the beginner in flower culture. If any of our readers is intending to make his first attempt with flower seeds and does not know exactly what to select, let him take the Portulaca. We would use the best seed of the double varieties we could find, for there will be sure to be some single ones among them, enough for all the interest that may attach to the flower in its natural or perfect condition. The double flowers are as perfect as little double roses, and are produced in the greatest profusion all through the summer and fall. To start the plants early, sow the seed in a pot or box in the house, keep warm and in about two weeks the little plants will begin to show themselves, looking like little reddish grains on the surface of the soil. A heat of 65° to 75°, or more, is best for them, and give the full benefit of the sunlight. The seed should be sown on the surface of some light, sandy soil, with a light sprinkling only of sand to cover it over. The seed is exceedingly fine, and only the slightest covering is desirable. When the plants are a quarter of an inch or more in length it will be best to prick them out singly into other pots of similar soil, giving them a little room to spread. As soon as frosts are past they can be transplanted into the open ground in a place fully exposed to the sun. This is no plant for the shade, it wants heat; in a dry, sandy soil where it receives the reflected heat of a building, or wall, or fence, it will thrive best.

The Portulaca is admirably adapted to carpet-bedding, as it is a very dwarf-growing plant, and with its various colors a great variety of designs can be worked out. The colors are produced quite true from seed, but in carpet-bedding a plant of an undesired color should be removed as soon as it shows, and its place will be occupied by others which spread very rapidly. In transplanting into beds the plants should be set about six inches apart.

A little attention to watering may be needed at the time of setting, but the plants will take care of themselves pretty well in this respect after the roots start. Keep out the weeds from the beds, and stir the soil frequently while the plants are young, but when they begin to spread freely they may be allowed to take care of themselves. There is no part of the country where the Portulaca will not do well, provided it is in a light, sandy and dry soil, with a full exposure to the sun. There is no place in the South too warm for it, and its culture is so simple that any child can make a beautiful flower bed with it.—*Vick's Magazine*.

Apiary Display.

At the last show of the Baltimore County Agricultural Society, Mr. C. H. Lake made a very creditable and interesting display of bees, hives and bee-keepers' tools and requisites generally—the largest collection probably ever shown in this section of the country. The tent in which his exhibit was arranged was quite a centre of attraction to visitors. The engraving made for "Gleanings in Bee Culture," from a photograph taken by Mr. Geo. O. Brown, gives a good idea of the exhibit. For the Fair for this year the premiums in this department have been largely increased, and doubtless Mr. Lake and others will have equally instructive and entertaining collections, not only of hives and appliances, but also of working colonies, which will be publicly manipulated.



Farming Implements and Machinery.

The February meeting of the Deer Creek Farmers' Club was held at the residence of the President, Mr. Wm. Munnikhuyzen, on Saturday the 24th instant. The discussion was on farming implements and machinery, and our report is obtained from the *Aegis*.

James H. Ball said he supposed the question is what are the best kinds of implements. He had used a World reaper and mower with great satisfaction. Of plows he preferred the Oliver chilled. There are a great variety of spades, shovels, etc., but there is nothing better than the Ames shovel. It is impossible to farm without improved machinery.

W. D. Lee thought farmers should have all the improved machinery they need, but no more. It is important also, to keep it sheltered so as to make it last as long as possible.

George E. Silver said the use of improved machinery is indispensable to successful farming. If he only had 5 acres of grass to cut he would have a mowing machine, or with 15 acres of wheat he would have a reaper. Much time is lost by using bad plows. He had used the Oliver chilled and the Gale. The former is more durable but the latter will turn under the most rubbish. He had used a spring-tooth harrow and preferred it to any spike-toothed harrow. For the last six years he had used a wheel cultivator, and found it to work well, but in a small area he preferred a one horse cultivator, because it will work close to the corn. The Malta shovel plow is a good implement, and the one-horse drag is also a good thing. The best machinery is the cheapest, and while we should strike the happy medium, by not having too much, we may lose by not having something we need.

R. Harris Archer's opinion was that too much money is spent in farming implements. We may want to drill only 15 or 20 acres, but to make the wheat drill pay we ought to drill 200 acres. It is the same with mowers and reapers. To get a fair return for their cost each reaper should cut 150 acres, whereas many do not reap 15 acres. He recommended two or three farmers in a neighborhood uniting to buy a reaper in common. It would do the work for all. He thought that in three years, on account of the scarcity of labor, everybody's wheat will be cut with a self-binder. A double V harrow will level the ground as well as any harrow ever made, and the old-fashioned

cultivator will work the field cleaner than the patent cultivator. In experienced hands the latter will do twice as much work, but ordinary farm hands cannot work them properly.

Thomas Lochary said farmers should endeavor to get the best machinery and implements. With a little patch of wheat and rough ground a man has no business with a reaper. Where the ground is suitable you can generally save 1½ bushels to the acre by using a reaper instead of cradles. Good implements save time and muscle as well as prevent bad feeling and swearing. He had found the improved implements strong and durable. The kind that will suit one farm will not suit another. Steel plows run easier than ordinary plows and do good plowing, but the old Arthur plow with two yoke of oxen and a pair of horses is as good as any.

Bennett H. Barnes was also in favor of improved machinery. Every year wheat is more or less down and a reaper will save it. Has used a Wood's reaper for 17 or 18 years and it is still in working order. A self-binder will pay if you have as much as 20 acres to cut.

B. Silver, Jr., said it pays to use the best and most improved machinery. The improvement in plows is as great as in anything else. The new style Oliver chilled and the Syracuse will plow one-third more land in a day than the old-time plows. Taking one year with another it pays to have a reaper, but if wheat would always stand up straight would prefer cutting it with cradles. Last year he cut 60 acres with cradles in four days, at a cost of \$44. The improvement in wheat drills has also been great. Last year he planted 200 acres of sugar corn with an Empire wheat drill. It made the rows 40 inches apart, planting two rows at a time. The fertilizer was applied with the corn. Mr. Silver added that on the adjoining fields, where the corn was planted the same way but the fertilizer applied broadcast, the corn was the best. He likes double cultivators, but for 15 or 20 acres prefers the "go-devil," or three-tined corn drag. A slight objection to the double cultivator is that you cannot work as near the ends of the rows as with a one-horse cultivator.

Edward P. Moores thought farmers should take advantage of all kinds of machinery to save labor. There has been a great improvement in farming implements and in nothing

more than in plows. It is best to cut wheat with a reaper. It should be kept in good order. Much time is wasted in the field with broken machinery, and therefore it is economy to get the best.

Harry Wilson thought farmers should keep up with the times in improved machinery. Self-binders appear to be working successfully now, but he would not think it advisable for every farmer to have one. There has been great improvement in plows, but he sticks to the old Arthur. It is hard to determine which is the best plow. The kind that will suit one man may not suit another. He prefers iron cultivators, and likes the Thomas smoothing harrow. Last fall his land became hard and he used a disc harrow with great satisfaction. It is not good in stony land, but cuts sod up nicely. A wheat drill is an indispensable piece of machinery and every farmer with 100 acres should have one of his own. It would be a good plan for a number of farmers in a neighborhood to combine and buy a self-binder, which would cut and bind the wheat on all their farms in as short time as a reaper would cut it. A sulky plow, besides being comfortable for a lazy man, has this advantage, that any ordinary boy who can drive horses can work it.

R. John Rogers said a farmer should have the best improved farming implements, but no more than he actually needs. He would not have wheat cut with a cradle if he could have it cut for nothing. He did not think the difference in favor of a self-binder over an ordinary reaper is as great as people imagine. The self-binder is unwieldy, likely to get out of order, and the cost of wire or cord amounts to more than the cost of binding by hand. He has a Champion reaper, which had run for years, and he has never lost over 30 minutes in the field with it at any one time. He preferred a single reaper and a single mower. If he only sowed 10 acres of wheat he would have a drill. As to plows, every farmer thinks his own the best. There is, indeed, but little difference in steel plows.

Wm. Webster said, improved machinery bore the same relation to the old kinds that improved stock bears to the old-fashioned stock. He would not advise any farmer to buy all the improved machinery on the market, but when his machinery wears out replace it by the best that can be found. If a farmer has a machine that cannot be made to do good work he will save by throwing

it away and buying a better one. The plow is as important to the farmer as the hatchet to the carpenter or the trowel to the mason. Is satisfied with the Oliver chilled plow, and can do with it as much work with two horses as his father could with three horses and the old-time plows. If compelled to do without any machinery but the plow the drill is the last he would dispense with. It is of advantage to have the reaper and the mower separate, as time is lost by changing.

Judge Watters said farming could not be done now without improved machinery and it is poor economy to use inferior articles. The kind used must depend upon the character and quantity of land and the manner of farming it. Nothing has been more improved than agricultural implements and it is now impossible to attempt to farm without keeping up with the improvements in them. The illustration Mr. Silver gave of the advantage of cutting wheat with cradles over a reaper, was hardly fair, because he had a large number of hands working by the year, and their labor, of course, did not cost so much per day, as the hire of temporary hands. The time is coming when all farmers will use the self-binder. Farm work can be done cheaper by machinery than by muscular force, but farmers should avoid the expense of overdoing it.

John Moores thought all farmers ought to be provided with the best machinery they can obtain, but he would not advise any one to go in debt for it. Many farmers had laid the foundation of debt and been sold out for agricultural machinery which they could have done without. Machinery should be well taken care of. Reapers and mowers should be kept on a good board floor, in a tight house, which the dust cannot penetrate.

Every farmer with 20 or 30 acres of wheat and money enough to buy a self-binder should have one. The loss of wheat in tying by hand is more than the cost of wire or cord for the machine. He had used a Champion reaper for years but liked the Manny as well as any he had seen. He would say, buy all the machinery you are able to pay for, and if you haven't money don't buy.

Thomas A. Hays agreed with Judge Watters and Mr. Moores. He then asked the cost per acre of cutting, putting in the barn and threshing wheat that will yield 20 bushels to the acre. B. Silver, Jr., said as a general thing it was worth one-fourth the crop. Mr. Hays thought \$4.50 an acre ought to pay for it.

Wm. Munnikhuyzen, the President, said no reference had been made to hay tedders. Judge Watters said he had used one and thought it of great advantage where a large crop of hay is to be saved.

Geo. E. Silver mentioned the advantage of using a circular wood saw to save labor.

Mr. Munnikhuyzen believed in using good machinery and whatever a farmer requires. Farmers complain that prices are too high. He had recently been enabled to find out more about manufacturers' profits than he knew before, and was convinced that generally they were very small. It was only by selling a great number that it became profitable.

Mr. Geo. E. Silver suggested that it was the President's birthday, the club extend their best wishes to Mr. Munnikhuyzen for a long life and many happy returns. The motion was carried unanimously.

Resolutions of respect to the memory of the late Major Wm. H. Dallam, an honorary member of the club, were passed and the club adjourned to meet at Mr. John H. Janney's, March 17th.

We call attention of tree-planters to the large collection offered by Mr. Randolph Peters at his nurseries, Wilmington, Del.

Profits on Fruit.

Our friend Mr. W. H. Jessop, the well-known and successful fruit grower, of Hayward, California, writes us a valuable and interesting paper concerning the profit of fruit culture. He shows that the market for green fruit is limited and uncertain; but that certainty lies in canning or drying fruit for the markets of the world. He considers, very judiciously, that dried fruit is the most certain in the long run, as carefully desiccated fruit has every good quality, and can be put up cheaper than the same amount of canned fruit, as well as can be transported at a small part of the cost of the other.

We call attention to the value that pertains to the different kinds of fruit, after it dried, as follows:

Apples turn off 5 to 5½ lbs. of dried fruit to a bushel of 50 lbs. weight, so that they hardly yield more than ten per cent. of dried product. Machine dried apples sell readily at 9 to 10 cents, and estimating the product at 5½ lbs. to the bushel, the result would be 50 to 55 cents per bushel. Any person can see that to dry apples in the orchard, and realize that much will pay handsomely.

Pears turn off 7 lbs. per bushel, as near as we can estimate, and will sell as well as apples, and perhaps better. So few pears are dried that we have never made an estimate, but we have for two years in succession dried Bartlett pears very nicely, and sold the products at 16 cents per pound, which was \$1 per bushel.

Plums yield from 20 to 25 pounds to the bushel of 50 lbs. We noticed that Peach plums, Columbias, Coe's Golden Drops, Yellow Egg plums, grown in an orchard, turned off 25 per cent. of dried product, say 12½ lbs. to the bushel, and as we sold extra choice fruit for 16 cents, well packed, that was \$2 per bushel. But 16 cents is over what we can expect. Suppose that really choice pitted plums sell readily for 12 cents, which is probable, and that they turn off 10 lbs. per bushel, it is evident that there can be great profit made raising and drying them.

Prunes, again, dried with the pits in, turn off 28 to 34 lbs. per hundred weight. If we average them at 15 lbs. per bushel, and can sell at 8 cents per pound there is \$1.20 per bushel.

Take the range of choice fruits of the varieties for drying of plums and pears, and it must be apparent to every one that there is a great profit in growing and drying them for market. If the grower can net 50 cents per bushel for the fruit on the tree, there is no branch of husbandry that can be more profitable.

One thing to be remembered is that there is no fruit tree more healthy than the plum and prune, and no tree bears more certainly and more abundantly. This is a fact that is well established in our state.

We figured up carefully the whole matter before setting out an orchard, and came to the conclusion that it will pay handsomely to grow fruit when prunes will be worth 6 cents, and pitted plums 8 cents per pound. Even at that price the product will average to yield \$1 per bushel in value, and the expense of curing need not be over one-fourth of that amount.

We have no sympathy with the sensational figures put forth by over-anguine persons. It is true that some fruit may sell at fancy prices, but we must count on seeing an immense product of canned and dried fruits on this coast, and calculate the prices will drop with production on a large scale. In the Eastern States, and even with us, they largely consume Turkish prunes of a very cheap grade. They are imported for about four cents and a high duty. If we make a better prune and compete with their imports, we have still to sell at a low price as soon as the market is over-stocked. We hold that we can thus compete, and yet make a good profit on our fruit.—*Willamette Farmer*

Improvement in Montgomery Co., Md.

At the recent convention at Towson town Mr. H. C. Hallowell, of Montgomery county, gave some striking statistics. He stated that on a farm of 200 acres where, in 1845, but sixteen tons of hay had been raised, there have since been as much as seventy-five tons gathered in a season; where forty-one bushels of wheat was the entire crop, 1,000 bushels are raised; the crop of corn was seventy bushels in 1845, and this year was 1,400 bushels.

The value of the entire crop of nine farms, in 1845, was but \$10,000; in 1870, the same farms yielded \$36,000.

In Berry District, comprising about one-fifth of the county, the hay raised in 1850 was 1,400 bushels, against 4,200 tons in 1870. The wheat crop in 1850 was 23,000 bushels, against 40,700 bushels in 1870. The potato yield in 1850 was 10,000 bushels, that of 1870 was 77,000 bushels. The corn crop of 1850 was 56,000 bushels, that of 1870, 108,000 bushels.

In 1845, the average yields of land under cultivation was for hay three-eighths of a ton per acre; now it is one and a quarter tons. Wheat was twelve bushels per acre; now it is twenty-four bushels per acre. Corn was twenty bushels per acre; now it is 40 bushels per acre.

On some farms, in favorable seasons, two and a half tons of hay, forty bushels of wheat and eighty bushels of corn have been raised per acre.

The amount of property insured in the county increased from \$443,000 in 1857, to nearly \$3,000,000 in 1883.

Drilling Onions.

The best time to drill onions is as soon as the frost is out of the ground and it is dry enough for preparation; then set all hands at work and rush it through. No matter if it is only the first of March, don't be afraid of after freezing; it won't hurt them. I have frequently known the ground to be frozen to a crust after onions were up, without any perceptible damage. The reason for early planting is obvious, when it is known that onion seed will germinate at a lower temperature than most other seeds, while weed seeds require a much higher temperature; consequently the onions will make their appearance many days before any weeds, enabling one to commence cultivation before any weeds are seen, and thus keep weeds in check. Fall plowing facilitates early spring preparation, making early drilling practicable. After the ground has been made fine and mellow drill four pounds seed to the acre, in rows at one foot apart.—*Landreth's Onion Culture.*

AGRICULTURE IN THE SOUTH.

Its Needs and Opportunities.

By TH. POLLARD,
Ex-Commissioner of Agriculture of Virginia.

In our last we were speaking of the health and soil of Virginia, and incidentally of those of Maryland and North Carolina. We were defending the health of Tidewater Virginia, and remarked that we believed that the remarks would apply equally to the Eastern Shore of Maryland and Eastern North Carolina, which, like the eastern portion of Virginia, is subject to malaria, with the same extenuating conditions. The western portion of the State is considered very healthy. The region about Ashville is considered by some the healthiest portion of the United States.

We have little doubt but that statistics would prove that the Southern States are as healthy—certainly that they have as little or less mortality than the Northern. The summer is the sickly season at the South, and the winter at the North. Malarial disease is the prevailing sickness at the South; this is attended with comparatively little mortality, being entirely manageable by quinine, which if properly used will check it in a few

days, and then a few grains daily, with avoidance of night air, will prevent the recurrence. The diseases at the north are Pneumonia, Pleurisy, Rheumatism, and Typhoid fever, and these are of much more fatal character than the Malarial affections. Typhoid fever is of much rarer occurrence in the south, and of milder character. The years in which Yellow fever prevails in the south, should probably be excepted from the comparison, but this is not of frequent occurrence, and is confined to the seaport towns. We also spoke of the soils of Virginia, describing those of the western portions of the State as clay, or chocolate character, interspersed of course with some light, loamy lands as on the streams and mountains—those of Middle Virginia as grayish with clay subsoil, and those of Tidewater as light, and in some sections, particularly as you approach the bay, as sandy. The first is the "grass region" *par excellence*. The second is suited to great variety of crops, and as producing good clover and grass when improved. The third as the "trucking region," producing good clover in the upper half of this section when improved—remarking that "trucking" is annually becoming more profitable, principally by our rapid rail communications with the large western cities.

We think we have spoken sufficiently of the productions of Virginia, (though rather incidentally), and of their large range of variety.

TRANSPORTATION.

We come now to speak of our opportunities by reason of our navigable streams and railroad facilities, affording access to the markets of the world. Tidewater Virginia is penetrated by numerous large navigable rivers. This region has 1500 miles of tidal shore,* and water transportation to an unlimited extent. Chesapeake bay extending 200 miles from Hampton roads, nearly north, penetrates seventy miles of Virginia territory, with a breadth of fourteen to thirty miles, with many affluents traversing this section of the State.

The Chesapeake bay and its tributaries are destined to be the great commercial centre on the Atlantic coast, if not in the whole United States, not excepting the Pacific coast. This bay has been called the "Continental Harbor" of the United States, being the only great land locked arm of the Atlantic, and is almost never frozen up in the winter as the northern harbors are.* It is nearer to the great basin of the Ohio, the Mississippi and Missouri rivers, and to Cincinnati, and Louisville, and St. Louis, and Nashville, and Chicago, than any other point on the Atlantic. Richmond in the matter of distance has the advantage of almost a day's expensive freightage over Baltimore, Philadelphia and New York. The city of Norfolk, a port of entry, and the principal seaport town in Virginia, has a magnificent harbor, and Hampton roads can furnish safe anchorage for an immense amount of shipping. The Potomac river on the northern border of Virginia, the Rappahannock, the York and Pamunkey, the James and Roanoke, all afford navigation to the head of Tidewater. Besides these numerous rivers, the Albemarle and Chesapeake canal extends from Norfolk to Albemarle sound, and the Dismal Swamp canal also unites the waters of Chesapeake bay and Albemarle sound. By these two canals there is a through freight route from Albemarle sound in North Carolina, through the harbor to Norfolk and Elizabeth rivers, up the Chesapeake bay to the Chesapeake and Delaware canals, to Delaware bay and the Delaware and Raritan canals to the harbors of the north and the lakes.

Virginia is well supplied with railroad transportation. Five of these roads centre in Richmond, one of them reaching to deep water at Newport News, and another to

*Hotchkiss.

deep water at West Point at the head of York river.—One of them (Chesapeake and Ohio), has direct connections with all the large western cities by a shorter route than any other now in existence. Another, (Richmond and Danville), has control of all the lines extending to Atlanta, and is now building a road that is to reach the Mississippi. The Richmond and Danville also has control of the Virginia Midland and Great Southern railroad, which runs through Middle Virginia from Alexandria to Danville. These two roads are great trunk lines, and the former (C. & R. R.) is destined to be a great trans-continental line. Besides these we have a railroad reaching from Norfolk to Tennessee; another from Richmond to a junction with the C. & O. at Williamsburg, in Alleghany county, and which, it is expected, will be extended to Pittsburgh and to the western cities. The Valley of Virginia is well supplied with railroads—the Baltimore and Ohio Railroad branch from this road at Harper's Ferry to Staunton—the Shenandoah Valley Railroad extending from the Maryland System of roads to Big Lick, in Roanoke county, where it unites with the Norfolk and Western Railroad. Besides this, the Valley is intersected by the C. & O. R. R., and by the Norfolk and Western Railroad, which runs all the way down the southwestern valley to the Tennessee line. We have other railroads of less extent and importance than those mentioned, as one from Richmond to Petersburg, and one from Petersburg to Weldon,† one from Norfolk into North Carolina, and one from Alexandria into Loudoun county.

We comment on this subject of transportation, because it is an index of what a State is, or is to be, or ought to be, and because it is a matter of great importance to the farmer as affording ready access to market for his products. Think of the great transformation in this respect. We know localities in Virginia from which it consumed two weeks to carry one wagon load of produce to Richmond and return. The same trips with freight is now made by railroads in a day or less.

Railways have greatly advanced the price of the farmer's lands, for a farm on a railroad will sell for double what one remote from it will do—in fact it is very difficult now for any land to be sold, which lies off from a railroad or navigable stream. Besides this, railroads are promoters of civilization and social intercourse and instruction, by throwing together farmers and others who would otherwise have remained isolated in their country homes, and would probably never have met.

Our neighboring States, Maryland and North Carolina, are also well supplied with transportation, the former by the Chesapeake Bay and its tributaries and rivers entering it, and by railroads, prominently the Baltimore and Ohio, which brings a great amount of freight within the borders of the State; and the latter by the numerous streams on the East and railroads on the West, though they are not so numerous as they ought to be, and no doubt will be.

Some farmers have looked on railroads as their enemies, on account of the large amount of grain they bring from the fertile fields of the West to compete with our Eastern grain. Mr. Edward Atkinson, of Boston, seems to have disproved this. He says the cheap grain of the West may profitably be fed to laborers and stock, while the Eastern States will be driven to something more profitable, as dairying, stock and grass raising, fruits, manufacturing, etc. He says the result already has been, that the lands in Massachusetts and New York have risen in value since the introduction of the cheap grain of the West. It was predicted at the first that farmers would be injured in different ways by railroads among them; that the value of horses would be so greatly diminished that farmers could not afford to raise them. Such, however, has not been the effect, but rather the reverse, by the stimulation of various industries by the railroads.

†This was the first railroad built in Virginia. We remember when it was built.

The American Farmer

"O FORTUNATUS NIMIUM SUA ET DOMA NORINT
"AGRICOLAS." Virg.

PUBLISHED ON THE 1ST AND 15TH OF
EVERY MONTH,
By SAMUEL SANDS AND SON,
At No. 128 West Baltimore Street,
(Sign of the Golden Plow.)
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1 Inch 12 lines	\$1.25	\$2.25	\$4.00	\$5.50	\$9.00	\$15.00

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outside page subject to special contract. Trans-
ient Advertisements payable in advance—all
others quarterly. Advertisements should reach
us by the 15th and 27th of the month, to secure
insertion in the succeeding issue.

*. Subscribers who have minerals, ores, marls,
fertilizing materials, or other substances, will be
advised through our pages, by competent chem-
ists, as to their composition, uses and value, by
forwarding specimens to this office, *expressage or
postage prepaid*. Questions as to application of
chemical science to the practical arts will also be
answered.

*. Persons desiring information or advice on
diseases or injuries of domestic animals, will re-
ceive replies from a competent veterinary sur-
geon, by giving a plain statement of the symp-
toms, etc.

At the office of THE AMERICAN FARMER
are located the offices of the following organiza-
tions, of each of which its proprietor, Wm. B.
Sands, is secretary:

Maryland Horticultural Society.
Maryland Dairymen's Association.
Maryland State Grange, F. of H.
Agricultural Society of Baltimore Co.
Also, of the Maryland Poultry Club,
Thos. W. Hooper, Secretary.

BALTIMORE, MARCH 15, 1883.

The Agricultural College Presidency.

The Board of Trustees met on the 9th in-
stant, and on the second ballot elected Cap-
tain J. Augustine Smith to the vacancy at
the head of the College, he receiving seven
votes to two for Mr. Massey and one for
Captain McBlairst.

The Baltimore Sun says of the successful
candidate: "Captain Smith, the newly-
elected president is about 58 years of age, a
native of Virginia, but a resident of Baltimore
for many years past. He is a commercial
agent, and is connected with a company en-
gaged in Cecil and Harford counties in dig-
ging kaolin clay, used in the manufacture of
American porcelain."

It is understood that Captain Smith owes
his election largely to the influence of his
relative, Mr. J. Randolph Tucker, a member
of Congress from Virginia, who succeeded in
interesting in his behalf several of the Rep-
resentatives and both Senators from Mary-
land, and of other public officials, who en-
dorsed him to the trustees.

The college trustees had it within their
power, by the selection for president of a
man of talent and fitted to the post, to rein-
state and rehabilitate the institution, to dis-
arm the opposition which their past mis-
management aroused and prolonged, and to
crystallize around a pronounced effort to
reform its methods and improve the person-
nel of its officers, the hearty support of the
farmers of the State. They have deliberately
thrown away this opportunity, and in our
opinion have given the last blow to the col-
lege. The methods and influences which
have largely aided in the election of Captain
Smith are not such as would recommend
him to the agricultural sentiment of the

State, even were his training, experience
and acquirements such as to give promise of
success, or to commend him to the confi-
dence of the farmers.

It was practicable to have chosen for this
position a gentleman of scientific attain-
ments combined with practical skill, identi-
fied with agricultural pursuits, and awake to
the needs of the hour. Captain Smith,
whatever his private character, can hardly
be claimed, even by partial friends, to possess
these desirable qualifications. He is not a
farmer, not a professional teacher, not a
chemist. His work at best can be only su-
pervisory. His administration, in fine, can
only be a continuance of those of General
Jones and Captain Parker.

Mr. W. F. Massey.

Although this gentleman failed of election
to the Agricultural College presidency, the
many commendations which his candidacy
brought him from the press, especially of the
Eastern Shore, and from citizens in prom-
inent positions, must be very gratifying to
him, as evincing the appreciation in which
he is held by those who know him. The
readers of THE AMERICAN FARMER need
not be told that Mr. Massey not only is a
man of literary culture, but also a quick ob-
server, and of great practical skill in agricul-
ture and horticulture.

MESSRS. J. C. DUBROW & Co. attract
attention in this issue to the "Lansing"
spring-tooth harrow, a new implement in
this quarter, and one possessing many points
to commend it, some of which are enumer-
ated in their advertisement. Mr. Ed-
ward Austen, of Baltimore county, it will
be seen, commends its work highly. This
firm are also agents for the Buckthorne
barbed wire, an improved make, and many
other requisites for the farmer's use.

JERSEY BULL CALF.—Mr. Thos. P. Ellicott
advertises a bull calf of fine breeding in this
issue, which may be had at a fair price.

In Memoriam.

(MYRTLE GRANGE, No. 106,
A. A. Co., Md., February 21, 1883.

WHEREAS, It has pleased God in His in-
finite wisdom to visit the home of our worthy
Master, Bro. A. Rider, and take therefrom
his dearly beloved wife; be it resolved that
Myrtle Grange herein express its heartfelt
sympathy.

Resolved, That words but lightly express
the feelings upon the death of a dear friend;
with us, they are entirely inadequate to con-
vey an idea of our deep sorrow for one who
commanded our highest respect and esteem
by her faithfulness to every duty.

Resolved, That where our W. Brother has
lost a kind companion and his children a lov-
ing and indulgent mother, we have lost a
good neighbor; the Sabbath-school an in-
structive teacher, the church a good Christ-
tian and influential member;

Resolved, That we extend to the grief-
stricken family of our departed friend, our
heartfelt sympathies, especially to our brother,
the sorrowing husband, who, in his great
grief, can find unspeakable comfort from the
knowledge that her life was well spent; that
the fragrant memories of those whose lives
are spent in good works are a rich inheri-
tance to us who are left, and should serve as
incentives to emulate their examples in well
doing.

Resolved, That a copy of these resolutions
be presented to the family by our W. Secre-
tary, also sent to THE AMERICAN FARMER
for publication.

WHEREAS, It has also pleased God in His
infinite wisdom to remove from our midst
and take to himself our beloved Sister Mrs.
Ida C. Chestnut; be it

Resolved, That we express our deep sym-
pathy for the bereaved husband and family
of our deceased sister, and feel that we also
of Myrtle Grange have sustained the loss of
a valuable member whose interest and good
wishes have followed us even when her pres-
ence was denied us; and be it further

Resolved, That we recognize in our de-
ceased sister those commendable traits of
character which endeared her to all who
knew her, and that her quiet Christian life

and amiable qualities might well be emulated
by all of her large circle of friends and ac-
quaintances; and be it further

Resolved, That we extend to the bereaved
husband and family of our deceased sister
our heartfelt sympathy, as also to her father
and brother members of our Order, and that,
while she may not again return to our midst,
it is our inestimable privilege to look forward
to a reunion above, and may take comfort in
knowing that to those who are pure in heart
and life the closing of our mortal vision is but
the awakening to the glories of Heaven.

"Our State Agricultural College has Proven Itself a Success."

[Here is the way in which one of the
country papers in Kansas applauds the Ag-
ricultural College of that State—an institu-
tion which, adapting itself to the practical
needs as to education of its young men, has
done splendid work and established itself in
the front rank of these schools. What a
contrast to that in Maryland, to which every
country paper and every farmers' organiza-
tion refers only to jeer at or condemn for
its pitiful inefficiency.]

Among the various institutions of the kind
throughout the country, no other gives evi-
dence of such wide usefulness as that sup-
ported by the young State of Kansas. It
has come to be almost a universal fact that
the education of a farmer's son means the
abandonment of his father's calling. The
notion that brain culture and agriculture
should and can go together, that the first is
as essential for the proper development, ele-
vation and enjoyment of the last, or for any
of the other trades and professions, does not
seem to have any place in the minds of the
boys bred on the farm. If they strive for a
higher education, it is for the purpose of
raising themselves above the vocation they
were born to. The idea that they can lift
their vocation to any level they can bring
themselves up to, appears to be as a rule en-
tirely uncomprehended. These are un-
doubted facts, but why is it so? There is
certainly nothing in the vocation itself to
keep its followers down; nothing to war
against habits of culture or refinement, or
the possession and satisfaction of refined and
educated tastes. If there were, we would
not everywhere see men of refined faculties
who have amassed means and gained the
command of circumstances, turning to the
pursuit of the farmer as more congenial and
more abounding in conditions of pleasurable
life than any other.

There is another unfounded feeling that
turns the farmer boy from the pursuit of his
father, and that is the belief that the farmer's
work is harder than any other. To be sure
it is driving at certain seasons of the year,
but these periods are balanced by periods of
comparative relaxation. The busy me-
chanic, the factory operative, the merchant's
clerk, the book-keeper, as well as the suc-
cessful attorney, physician, merchant, or the
follower of any other calling, if he be suc-
cessful, has, as a rule, fewer hours and days
of leisure during the year than the farmer.
Every man who has a living to make; every
one carrying on a business of any conse-
quence; every one sustaining responsible
enterprises of any sort—is compelled to work
long and hard. There is little choice so far
as the severity of labor is concerned, in the
entire range of trades and professions. To
be successfully prosecuted, all demand ardu-
ous and unsparing toil, and few if any re-
quire less than the occupation of the farmer,
with the same amount of capital to start
with. His work is of a peculiarly healthy
and manly character, too, giving him the
benefit of the open air and the play of all the
physical powers, while the independence of
his position is unquestioned.

The success of the agricultural school of
Kansas is a clear indication that among the
farmers of this grand State there is an ap-
preciation of the necessity of elevating the call-
ing upon which the State is to depend for its

continued growth and power among States.
Upon agriculture must rest the foundation of
its greatness. It has the soil, the climate,
the brain, bone and sinew. It is cheering to
note that the efforts to perpetuate the su-
premacy already earned in the young State
are meeting with substantial encouragement.

Farming in Virginia.

Col. Robert Beverly in the *Industrial South*
gives the following result of his farming in
Virginia.

"I had on my farm 135 head of cattle.
They made me over and above their first
cost, by giving them the whole amount of
corn produced on the farm, less 130 barrels
reserved for horses and bread, \$45 per head
or \$6,075. This includes the grass they eat
off this farm up to time of delivery, 15th
October. These cattle cost \$48 each 1st No-
vember, 1881, were fed eight barrels corn
each through the winter and grazed on fine
grass till 15th October following made in-
cluding the corn, a profit of \$45 per head.

I made on land that would bring 12 bar-
rels of corn per acre without fertilizers 25
bushels of wheat per acre. I applied 300
pounds of bone dust to the acre and had a
remarkably fine season. In Essex county
one of my sons made 18 bushels to the acre
on 200 acres without any fertilizer, which I
consider a far better result than my 25
bushels with 300 pounds bone. My wheat
sold for \$1.03 a bushel, netting me 90 cents
per bushel. My net receipts from 100 head
of sheep was \$450—\$300 from the lambs and
\$150 from the wool.

My hogs after eating up the corn wasted
by the cattle netted me \$400. I made 1,300
barrels of corn on 110 acres—nearly 12 bar-
rels per acre. I shucked out 120 barrels for
bread and horse feed.

A good reaper and binder will put in
shock with five hands, in six days, on
smooth land, 120 acres of wheat. Two
3-horse plows will break up in the spring, in
thirty days, when the ground is loose, 120
acres of heavy sod, and it can be harrowed
and cross-harrowed with the same two
3-horse teams in twelve days more, it can
be planted in corn in twelve days more, or
if it is desirable to check off, it can be
marked off and planted by hand with four
hands and three horses in 15 days—55 days
in all to have all the corn planted.

Suppose we begin the 1st of March, that
fifty-five days would carry us to the 24th of
April, which is earlier than we wish to be-
gin planting in this section (and where they
wish to plant earlier they can begin to plow
earlier than the 1st of March.) But we have
made no allowance for Sundays and rainy
days; but we will give twelve days for that,
which will bring us to finish planting to the
6th of May. In ten days at that season of
the year the corn will be up, and we begin
plowing with three double-shovel plows,
with the three year hands, and having six
horses, change midday, each plow making
his four acres, or twenty acres a day, run-
ning twice in a row, and getting over the
corn first time in ten days—that brings us
say to the 26th of May. Then comes the
thinning, at which time we employ five boys
to help the year hands, and the eight hands
thin it in five days—which brings us to the
first day of June. It will then take the three
double-shovel plows ten days to plow it over
second time, that giving us ten spare days
before our usual harvest, say 20th June,
which is ample allowance for Sundays and
rainy days. We then go into harvest, the
corn having been plowed twice, and after
harvest we go over it the third time with
these same double-shovel plows in ten days—
that is the end of the corn cultivation. All
this time the cattle are grazing and the
wheat is ripening and being harvested.

My gross receipts from my farm of 600
acres is \$9,635. I now give the cost of run-
ning it—

Three year hands at \$175, \$125 and \$100....	\$400 00
Two barrels flour furnished them, not raised on the farm—all other supplies were.....	12 00
Day labor, \$125.50; their board, \$51.52.....	177 42
Total cost of labor (and board not produced on farm).....	\$589 42
Cost of fertilizer on wheat.....	600 00
Blacksmith's bill.....	42 00
Taxes, about.....	270 00
Agricultural implements and repairs to them for the year, about.....	100 00
	\$1,601 42

This leaves about \$8,000 net product of this farm, less the interest on its value, which I consider worth \$100 per acre, though it cost fifteen years ago only \$30 per acre—then, however, with no fences upon it, now well fenced and divided into eight fields. Had I sold off all the corn, grass, wheat and straw from the farm, it would not be worth now its first cost; but by feeding back on the farm all its products, except the meat of cattle, mutton and hogs, and the wool of the sheep, and the little wheat I make (which is a secondary object, only sowing it to get my land back into grass after corn, which I must have to winter my cattle), I've brought it up to producing the crop of 25 bushels of wheat and 19 barrels of corn per acre in a good season."

Home Department.

The "Ounce of Prevention."

Confined to a lounge, with no means of communicating between myself and my unknown audience but a fountain pen and tablet, what more natural than that I should choose my bonds for the theme of my discourse. To say that I had taken a cold would not be saying it truly—the cold took me. How or when it drew me into its toils I do not know, and probably never shall, but that it has me and holds me in merciless thralldom is why I would send a warning voice as far as it can reach to bid all beware of the treacherous influences through which this arch enemy insinuates himself. A cold is always an unwelcome guest, and one we almost invariably feel we might have avoided. Other ailments seem to have some incontrovertible right to inflict themselves upon us; we hear them as we do the more intrinsic possessions, but colds are not, so there seems no good reason why we might escape them if we know just how.

Of course, accidents will happen, and some time or other we are sure to be caught off guard; but just at this season it behooves us to keep a sharp lookout. Every hint of summer invites us out of doors, and when there we are beguiled into lingering over flower beds to search for our treasures of former seasons and to plan for the approaching one or to prospect for repairs and improvements about the premises. Lo! before we are aware of it, the seeds of a cold have fastened themselves upon us, to develop into pneumonia, influenza, meningitis, diphtheria, croup, or that most loathsome of all the forms it takes, catarrh. Scarcely a year has passed since my earliest recollection but that I have known instances where there was loss of life or health in consequence of working in the garden. Now I do not suppose there is anything in the mere act of working in the garden injurious to any one under ordinary conditions; on the contrary, it is admitted to be a most healthful exercise, but the garden tempts us out too early in the season and we are apt to go unprepared, thinking only to run out perhaps for a few moments, when we are almost sure to remain longer than we expected.

What I want to impress upon every woman who reads this is to use the "ounce of prevention" by always preparing to stay as long as may be pleasant or necessary when they go out into the garden at this time of the year. The sun shining with almost mid-summer glow, and the surface of the ground answering with jumping dandelions and daffodils, we fail to appreciate the dampness striking up from below, and stand or sit enjoying it all with the seat that springs from

long abstinence, without heeding the slight chilliness that usually gives warning of danger, remembered when too late, when sickness holds us in painful, if not fatal embrace. It is not enough to provide ourselves with rubber overshoes and suitable wrappings, which are of course essential, because a woman's dress, no matter how ample it may be to protect from cold surrounding them, as usually worn, forms a funnel to catch any dampness arising from the ground and to hold it until the whole system is affected thereby. Therefore, beside the sensible high walking boot now worn by all ladies, with their rubbers over these, we should especially for this time of the year wear flannel over-drawers, to put on when we go out and remove upon returning to the house. These should be made loosely, like Turkish drawers, with elastic in the bottom to hold them below the knees, and at the top bands behind and before, like those of small children, joined at each side with a few inches of elastic. This admits of drawing on and off without trouble of buttoning and unbuttoning. Made of colored flannel they rarely need washing. It strikes me that if this hint were made use of by "sewing societies" they would find it useful and profitable, and likewise rob many a grave of its victim and household of its interesting invalid.

CERES.

Practical Hints.

I remember to have seen my mother years ago mend broken earthenware by boiling it in milk after tying it together carefully, but the idea for some reason lay dormant until within the past year. I experimented first with a large bowl which I use for mixing cakes and similar purposes, for which I had an attachment out of all proportion to its value, as we often do have for working utensils, and therefore, a careless servant having broken the bottom of it, I concluded to try the experiment of mending it after my mother's method. Of course, the tying of such a piece and of many others is not easy, but it can be done, and if set in a vessel carefully is not likely to be displaced. I used skim milk; put it in cold and boiled it half a day. The bowl, after a couple of weeks' drying, was restored to its former uses, and is likely to survive its more perfect fellows, as cracked dishes are said to be most durable. Since then I have mended cups, plates, pitchers, indeed almost every kind of dishes in the same way, and thus far not one has separated, although there have been handles put on cups and pitchers, which, of course, have unusual strain upon them. A dish after being mended in this way should always be left to dry a few days before using.

Housekeepers will do well to remember that the dark nights in March indicate the time when bedsteads should be thoroughly washed to save trouble from insects during the summer.

This is also the time to dispose of flies. The few that make their appearance now seem so inoffensive that we either ignore them or allow our compassion to rule us, for most of us dislike to kill flies; but later when they become masters of the situation and dip first into every delicacy set before us besides insisting upon our not dozing by daylight regardless of our own wishes, then we know no compassion, and slay them wholesale. How much better to slay the unborn millions now.

CERES.

Ayer's Pectoral possesses far-reaching and powerful healing qualities which its persistent use will demonstrate in any case of colds, coughs, throat or lung troubles, while its soothing and restorative effects are realized at once.

Ayer's Cathartic Pills are known to be the safest, surest and best purgative medicine ever offered to the public. They are mild but certain in their effects, and keep the system in good condition.

Baltimore, Md., Aug. 24th, 1880.

I have been on the Police force for 9 years and it formerly cost me annually about one hundred dollars for Dr's bills and medicine, but have for the past two or three years been using J. M. Laroque's Anti-bilious Bitters, and say positively that it is the best medicine for biliousness and Dyspepsia I ever saw or tried, and it seems especially adapted to Policemen and all persons who are much exposed to the weather. I never take any other medicine, and always keep it in the house ready for use. John Powers, Middle District.

Baltimore Markets, March 15.

Flour.—Dull and inanimate. We quote as follows: Howard St. Super \$3.37@4.00; do. Extra \$4.25@5.00; do. Family \$5.25@5.00; Western Super \$3.37@4.00; do. Extra \$4.25@5.00; do. Family \$5.25@5.00; City Mills Super \$3.37@4.00; do. Extra \$4.25@5.00; do. (Rio Grande) Extra \$6.00@6.25; Spring Wheat Family 5.25@5.75; Minnesota Patent Family 7.25@7.75; do. (high grades) 7.75@8.50; Colbert's Excelsior Graham 7.75; Ficklen's Bridgewater Family 7.50@7.75; Fine \$8.00@8.25; Rye Flour \$4.25@4.50; Baltimore Pearl Hominy \$4; Grits \$4.25; Corn Meal per 100 lbs. \$1.35; Baltimore Hominy Chop \$1.00.

Wheat.—Firm. We quote prices as follows: Spot \$1.17@1.17½; March \$1.17; April \$1.18½@1.19; May \$1.21½@1.21¾; June \$1.22@1.22½; Southern Fultz \$1.18@1.21; Southern long berry \$1.20@1.26.

Corn.—Dull, closing with a moderate inquiry. We quote: Spot \$0.66½@0.67; March \$0.66½@0.67; April \$0.67; May \$0.68; June \$0.69; Steamer \$0.69½@0.70; Southern white \$0.68½; Southern yellow \$0.68½.

Oats.—A shade weaker. We quote: Western mixed \$0.55 cts.; do. white \$0.56 cts.; Pennsylvania \$0.56 cts.; Maryland and Virginia \$0.56 cts.

Rye.—Easy and at lower prices. Prime Maryland and Pennsylvania are quoted at \$0.62 cts.

Mill Feed.—Western is firm, and under light receipts prices are higher. City Feed is active at \$24 per ton for Brownstuff, and \$20.21.50 for Middlings. Western \$19.50 for light Middlings and \$20 for Brownstuff.

Hay and Straw.—Fair demand for good to choice Hay, but common is neglected. Straw is quiet and unchanged. Quotations for baled Hay are as follows: Cecil county Timothy \$17@18; New York and Western \$16@17 for common to fair, \$12@13 for good to prime; Maryland and Pennsylvania \$13@15; mixed \$11@12 per ton; Clover \$11@12. Straw is quoted at \$8@9 for Wheat; \$10@11 for Oat; \$10½@11½ for long Rye, and \$10 for short do.

Provisions.—Dull. We quote packed lots as follows: Bacon clear rib sides 12c.; bulk shoulders 8½c.; bulk long clear 10½c. Mess Pork \$30; Lard, refined, tierces and barrels, 12½c.; Canned Hams, 11½ average, 14½; small hams 12c.; pork strips 10½c.; fat backs 11c.; bellies 11½c.; sugar-cured shoulders 10c.

Breeds.—Firm and advancing. We quote: Hogs 100 to 150 lbs. weight 8½@9c.; 160 to 200 lbs. and upwards 8@8½c.

Butter.—Easy and offish. Quotations are as follows: New York State choice 27@28 cts.; do. Creamery fancy 28@29 cts.; do. prime to choice 26@27 cts.; Western imitation creamery 25@26 cts.; prime ladies packed 18@20c.; good to prime do 17@18c.; near-by receipts 16@18c.; Ohio rolls, choice 19@21c.; fair to good 16@18c.; choice Gales 22@23c.

Live Stock.—Good Cattle.—Slight improvement at last market. We quote: Very best on sale 6½@7c.; That generally rated first quality 5½@6½c.; Medium or good fair quality 4½@5½c.; Ordinary thin steers, oxen and cows 3½@4½c.; Extreme range of prices 3½@7 cts.; Most of the sales were from 5½@6½ cts. Hogs.—The run is light again. The demand is medium to good. Prices have been maintained at 9½@10½c. and the prospects are that higher figures will rule next week, as Western prices are advancing to a greater degree than our home quotations. Sheep.—The receipts have been quite light, with but few good or really prime Sheep among them—most of the stock being only common to fair. Trade is slow, some butchers buying quite sparingly. We quote common to fair Sheep at 4½@5½c.; fair to good 5½@6½c. and good to prime 6½@7, with extremely few at the latter price.

→ GOOD ←

FERTILIZERS

For \$12 a Farmer can buy a FORMULA For (520 lbs) of POWELL'S PREPARED CHEMICALS

This, when mixed at home, makes One Ton of SUPERIOR PHOSPHATE, equal in plant-life and as certain of successful crop-production as many high priced Phosphates.

NO EXTRA EXPENSE. Full directions.

POWELL'S CHEMICALS have been thoroughly tried, give universal satisfaction, and we offer leading farmers in every State as reference. Send for Pamphlet. Beware of imitations.

Brown Chemical Co

SOLE PROPRIETORS, BALTIMORE, MD.

Manufacturers of Powell's Tip Top Bone Fertilizer. Price only \$35 a Ton, net cash. Bone Meal. Dissolved Bone. Potash. Ammonia. And all high-grade Fertilizing Materials.

COTTON GRAIN AND TOBACCO VEGETABLES

1883.

PREMIUM LIST

— OF —

THE AMERICAN FARMER

Valuable Premiums to all who consume time or take trouble in enlarging its circulation for 1883.

TAKE NOTICE:

No special authority is required from us to enable any one to act as agent.

Send subscriptions as fast as received. Old and new names count the same, and they may be from different postoffices, but in every list sent for a premium it is expected that some shall be new names. Send with each list the exact amount of money.

Any list can be closed at any time and the premium desired will be forwarded; or additional names can be added up to May 1, 1883.

All premiums will be forwarded by express at the expense of the receiver, unless we state that they will be sent free by mail. Any article sent by mail will be registered on receipt by us of the registry fee of 10 cents.

SEND MONEY BY POSTAL MONEY ORDER, DRAFT OR CHECK, OR BY REGISTERED LETTER. Money sent by unregistered letter is at sender's risk.

PREMIUMS.

No. 1. Black Walnut Hand Stereoscope and six views. Price \$1.50. We will furnish by mail, postage paid, for two subscribers at \$1.50, or five at \$1.00.

No. 2. Black Walnut Hand Stereoscope, with Tulip Wood Hood, (better lens than No. 1,) and six views. Price \$1.75. We will send this by mail, postage paid, for three subscribers at \$1.50, or six at \$1.00.

No. 3. Satin Wood Polished Hand Stereoscope, nickel trimmed, (fixed or folding,) and one dozen views. Price \$3.00. We will send this for four subscribers at \$1.50, or ten at \$1.00. [This premium is a very handsome one, adapted for a present, and will be appreciated by any one of taste for art.]

No. 4. Photograph Album, Morocco covered, with clasp and ornamented sides, with places for twenty-four pictures. Price 65 cents. We will send this by mail, postage paid, to any present subscriber who will send one new one at \$1.50.

No. 5. Photograph Album, Morocco, paneled sides, gilt edges, embossed, with places for forty pictures. Price \$1.25. We will furnish this by mail for two subscribers at \$1.50, or five (new and old) at \$1.00.

No. 6. Photograph Album, Morocco, heavy beveled cover, embossed deep gilt edges, nickel clasp and hinged back, with places for fifty cards. Price \$3.00. We will send this for three subscribers at \$1.50, or eight at \$1.00.

No. 7. One Hundred Plants of the Mount Vernon Strawberry.—This is one of the most promising of the newer varieties; a strong, healthy grower; enormously productive, and is said to have produced 300 bushels of fruit to the acre. It has the desirable quality of blossoming very late, thus escaping injury by late frosts, often so destructive. It is moderately firm and of a fine bright scarlet color and excellent quality. It is the berry for home consumption and for not too distant markets; averaging large in size, (which is kept up till end of season,) whilst the plant is free from blight and scald and remarkably prolific. It is identical with Kirkwood. It promises to become, uniting so many excellent qualities, one of the most popular sorts. For two subscribers at \$1.50, or five at \$1.00. Sent postage paid.

No. 8. One Hundred Plants of Miner's Great Prolific Strawberry.—This variety is of general excellence and adaptation to all circumstances. It is a superb berry, averaging very large, and uniform in size, continuing in bearing a long time. Its color is a deep crimson; flavor good; foliage clean,

healthy and luxuriant. It is extremely productive. It has a glossy green cap which holds firmly even when full ripe. The berry is moderately firm and a tolerably good shipping sort. For two subscribers at \$1.50, or five at \$1.00. Sent postage paid.

No. 9. Twenty-five Plants of Queen of the Market (or Cuthbert) Raspberry. In no other variety are there so many good qualities combined. It is large in size, firm in texture, of a fine appearance and handsome red color, of strong vigorous growth of cane; hardy and remarkably productive. To all this must be added that wide trial shows it to succeed in every locality—to be of universal adaptation to all sections, situations and soils. For two subscribers at \$1.50, or five at \$1.00. Sent postage paid.

No. 10. The following Splendid Hardy Ornamental Flowering Shrubs:—
Hydrangea Paniculata Grandiflora.
Viburnum Plicatum.
Syrax Japonica.

These comprise the three most beautiful species of late introduction, and all should find a place in the garden or yard of every reader of the *American Farmer*, each being emphatically "a thing of beauty." Sent by mail, prepaid, for two subscriptions at \$1.50, or five at \$1.00.

No. 11. Handsome Gold Ring, Cameo Set, for lady or gent. Price \$5.00. We will furnish this by mail, postage paid, for five subscribers at \$1.50, or fifteen at \$1.00.

No. 11 A. Elegant Gold Ring, Cameo and Pearl Set, for lady. Price \$6.00. We will send this by mail, postage paid, for six subscribers at \$1.50, or twenty at \$1.00.

No. 12. Gent's Seal Ring.—Beautiful design. Price \$12.00. For twelve subscribers at \$1.50, or forty at \$1.00.

No. 13. Gent's Double Curb Watch Chain.—Rolled Plate; tips of solid gold. Price \$5.00. We will send this by mail for five subscribers at \$1.50, or twelve at \$1.00.

No. 14. Watch Chain, same as No. 13, but heavier. Price \$6.00. We will send for six subscribers at \$1.50, or sixteen at \$1.00.

No. 15. Lady's Guard Chain.—Rolled Plate. Price \$10.00. We will furnish this, by mail, postage paid, for ten subscribers, at \$1.50, or thirty-six at \$1.00.

No. 16. Lady's Guard Chain, same as No. 15, but heavier. Price \$14.00. This we will send for fourteen subscribers at \$1.50, or fifty at \$1.00.

No. 22. Silver Open Face Lepine Watch.—Good time keeper. Price \$9.00. We will give this watch for twelve subscribers at \$1.50, or thirty-six at \$1.00, by mail, postage paid.

No. 18. Silver Hunting Case Lepine Watch.—Smaller than No. 22. A good time-piece. Price \$7.50. This watch we offer for ten subscribers at \$1.50, or thirty at \$1.00, and forward by mail, postage paid.

No. 19. Silver Open Face American Watch.—A good honest, low-priced watch. Price \$11.00. We will give it for fifteen subscribers at \$1.50, or forty at \$1.00.

No. 20. Silver Hunting Case American Watch.—A serviceable cheap time-keeper. Price \$12.00. We offer this watch, by mail, postage paid, for fifteen subscribers at \$1.50, or forty at \$1.00.

SILVER-PLATED WARE.

From an established and reputable manufacturer. Triple plated on white metal base. Not the cheap stuff which has flooded the market, but substantial and reliable goods. Warranted as to quality and wear.

No. 21. Table Service of Six Pieces.—Comprising tea, coffee and hot-water urns, cream pitcher, sugar and slop bowls. Neat style. An admirable article. Price \$42.00. We will send this service, by express, for forty subscribers at \$1.50, or one hundred and ten at \$1.00.

No. 22. Tete-a-tete Set of four Pieces.—A beautiful service. Price \$24.00. By express for twenty-four subscribers at \$1.50, or seventy-five at \$1.00.

No. 23. Ice Water Pitcher.—Handsome style. Price \$12.00. By express for twelve subscribers at \$1.50, or forty at \$1.00.

No. 24. Cake Basket.—Neat pattern. Price \$6.00. By express for six subscribers at \$1.50, or twenty at \$1.00.

No. 25. Butter Dish.—Late style. Price \$6.00. By express for six subscribers at \$1.50, or twenty at \$1.00.

No. 26. Pair Flower Vases.—Chaste pattern. Price \$7.50. Sent by express for eight subscribers at \$1.50, or twenty-five at \$1.00.

No. 27. Child's Drinking Cup.—Price \$3.00. By mail, postage paid, for four subscribers at \$1.50, or ten at \$1.00.

No. 28. Set of Six Napkin Rings.—Price \$3.00. By mail, postage paid, for four subscribers at \$1.50, or ten at \$1.00.

No. 29. Pickle Caster, with two glass jars. Price \$2.00. By express for three subscribers at \$1.50, or six at \$1.00.

No. 30. One Doz. S. P. Table Spoons.—Modern pattern. Price \$7.50. By mail, postage paid, for eight subscribers at \$1.50, or twenty-five at \$1.00.

No. 31. One Doz. S. P. Medium Forks.—Modern pattern. Price \$7.50. By mail for eight subscribers at \$1.50, or twenty-five at \$1.00.

No. 32. One Doz. S. P. Tea Spoons.—Price \$4.00. By mail for four subscribers at \$1.50, or fifteen at \$1.00.

No. 33. Fruit Knife.—Price \$1.50. By mail for two subscribers at \$1.50, or five at \$1.00.

No. 34. Child's Set, of knife, fork and spoon, in case. Price \$3.00. By mail for four subscribers at \$1.50, or ten at \$1.00.

No. 35. Child's Set, on card. Not so good as No. 34. Price \$1.50. By mail for two subscribers at \$1.50, or five at \$1.00.

No. 36. Pair Bangle Bracelets.—(Adjustable) New style. Price \$12.00. By mail for twelve subscribers at \$1.50, or forty at \$1.00.

No. 37. Enameled Bracelet.—Very neat. Price \$6.00. By mail for six subscribers at \$1.50, or twenty at \$1.00.

No. 38. Bell-Head Pencil.—Rolled Plate. Price \$1.50. By mail for three subscribers at \$1.50, or five at \$1.00.

No. 39. Watch-Chain Pencil.—Price \$1.25. By mail for three subscribers at \$1.50, or five at \$1.00.

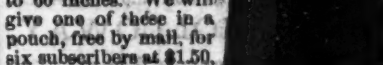
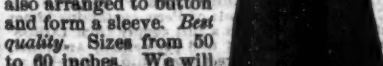
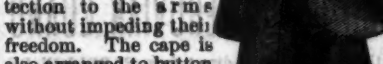
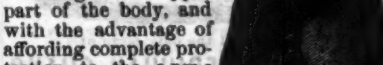
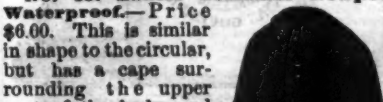
No. 40. Remington Single Barrel Breech-Loading Gun.—Price \$14.00. Weight 6½ pounds; sixteen gauge, 32-inch plain but fine quality barrel; no ornamentation, but shoots as well as a high-priced gun, and can be loaded and fired very rapidly. Just the gun for a country youth. We will send this gun by express for fifteen subscribers, at \$1.50, or forty-two at \$1.00.



No. 41. Remington Double Barrel Breech-Loading Shot Gun.—This gun has rebounding lockers, extension rib and patent fore end fastener; decarbonized steel barrels, 28 and 30 inch; 10 and 12 gauge; weight 8 to 9½ pounds. This gun is one of the most approved makes, with many advantages peculiar to itself, and worthy the reputation of the house which produces it. No sportsman can afford to pass by this opportunity we here give of getting this excellent gun on the liberal terms we offer. This uses either paper or brass cartridges, which may be reloaded many times. With the gun we send 24 Remington Brass Solid-head Shells, with Primer Extractor and Re-primer, and 500 No. 1 Primers. Price of gun \$40.00, extras \$4.00, total \$44.00. We will send this gun, by express, for fifty subscribers at \$1.50, or one hundred at \$1.00.

No. 42. Ladies Gossamer Rubber Waterproof Circular.—(With Hood.) Price \$5.00. This is best quality goods, and a useful, indeed necessary, article for every country woman. It is so small in bulk and so light, it can be carried in the pocket. Each one is put up in a separate bag in which it can be mailed. The circulars range in length from 50 to 60 inches, and in ordering give length desired from the neck to the hem of the dress. We will send one of these, of any size, by mail, postage paid, for five subscribers at \$1.50, or fifteen at \$1.00.

No. 43. Ladies Gossamer Newport Waterproof.—Price \$6.00. This is similar in shape to the circular, but has a cape surrounding the upper part of the body, and with the advantage of affording complete protection to the arms without impeding their freedom. The cape is also arranged to button and form a sleeve. Best quality. Sizes from 50 to 60 inches. We will give one of these in a pouch, free by mail, for six subscribers at \$1.50, or sixteen at \$1.00.



No. 44. Gentlemen's Gossamer Rubber Back Coat.—Price \$6.90. This is the best quality goods, made extra long, loose fitting, with sleeves lapping over at the wrist, affording the most perfect protection to the entire person. Very light, weighing little over one pound. A necessity for every one exposed to the weather on the farm or road. Secure one by any effort. We will give one, sent prepaid in a pouch, for six subscribers at \$1.50, or sixteen at \$1.00. Give breast measure.



No. 45. Men's Gossamer Rubber Leg-gins.—Price \$1.50. A great protection, almost indispensable for wet weather and muddy roads. They are unlined and are large enough to draw on over pants and boots, and fasten by a strap to the suspender buttons. They are very light and readily carried in the pocket. We can supply small large or medium sizes. We will forward a pair for two subscribers at \$1.50, or five at \$1.00.



CARBONATE OF LIME

KAINIT, Or German Salts of Potash.

N. S. Fine Ground GYPSUM.

GROUND BONE, (Slaughter House.)

PERUVIAN GUANO.

SEND FOR TREATISE ON ABOVE.

CEMENTS

FOR SILOS, CISTERNS, &c,

Direct Importations of Foreign Portland Cements. Send for Treatise on Cements, how to use them, etc.,

WM. WIRT CLARK & SON,

Importers and Receivers,

61 S. GAY STREET, Baltimore, Md.

HOW WE ALWAYS TEST SEEDS.

From Small Tests Began in 1784 this Practice has Extended to Acres. OUR TRIAL GROUND embraces the entire list of vegetables from A to Z; not one sample of each, but comparative lists of sometimes two hundred of each sort. Samples of our own, samples from the counters and seed lists of American Seed Merchants, samples from Canada, England, Holland, France, Germany, Italy and other more remote parts of the World, all classified, ranged side by side.

Each family of vegetables planted the same day, and under precisely the same circumstances, each trial distinguished by a label bearing specific numbers; these recorded in a book, giving date of planting and origin of sample.

The books of record are volumes of practical observation, and may be seen in the office stacked away, extending far back into the years, ready at all times to testify to the merits or demerits of every vegetable known to the trade.

All conditions and disturbing causes are taken into account, and in this case the whole history of the growth and characteristics of the plant are discovered by means of the comparative method. We know the history and quality of the goods we sell. The trial ground is at once a "sample room," a "register" of kinds of stock, a "laboratory," a record of kinds sold, with dates and particulars.

If you want good seeds, true to name, buy LANDRETH'S in Original Sealed Packages.

Landreth's Rural Register and Almanac, containing full catalogue of Landreth's Celebrated Garden, Field and Flower Seeds, with directions for culture. In English and German. Also, Catalogue of Implements and Tools free of charge. PRICES LOW.

D. LANDRETH & SONS.

21 and 23 S. Sixth St., bet. Market and Chestnut, and S. W. Cor. of Delaware Ave. and Arch St., Phila.

GREAT NORTHERN AND SOUTHERN NURSERY.

Catalogues Gratis.

Showing how and what to plant, with much valuable information. My stock is full and unusually fine. A full line of Peaches and extra long keeping Apples, Keiffer and Leconte Pears, Japan Persimmons, Reas' Mammoth and Champion Quince, Small Fruits, Ornamental Trees, and all stock usually found in a first-class Nursery. Prices low for reliable stock. 300,000 ORANGE ORANGES.

RANDOLPH PETERS,

WILMINGTON, DELAWARE.

M. G. ELLZEY, M. D.,

1012 I Street N. W., Washington, D. C.

Breeder of Highly Bred Gentleman's Roadsters and Saddle Horses,

Shorthorn Cattle, Southdown Sheep direct from Lord Wals-

ingham's Celebrated Flock, and Purely Bred Berk-

shire Swine.

Correspondence invited. PRICES LOW. Some fine Horses now for sale.

THE SUGAR HAND BOOK

A NEW AND VALUABLE TREATISE ON SUGAR CANES, (including the Minnesota Early Amber) and their manufacture into Syrup and Sugar. Although comprised in small compass and furnished free to applicants, it is the BEST PRACTICAL MANUAL ON SUGAR CANES yet published.

OLYMPIAN MANUFACTURING CO
Cincinnati, O.
Manufacturers of Steam Sugar Machinery, Steam Engines
Victor Cond. Mill, Cook Sugar Evaporator, etc.

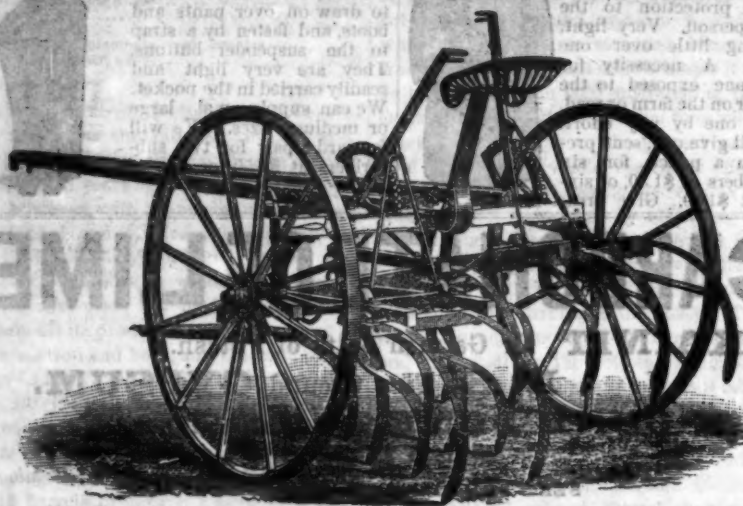
"THE BEST IS CHEAPEST."

ENGINES, THRESHERS SAW-MILLS,
Horse Powers, Clover

(Sailed to all sections.) Write for FREE Illus. Pamphlet and Prices to

The Aultman & Taylor Co.,
Mansfield, Ohio.

THE LANSING WHEEL SPRING TOOTH HARROW



THE BEST & LATEST IMPROVED WHEEL HARROW ON THE MARKET
HAS MORE GOOD POINTS OF EXCELLENCE THAN ALL
THE OTHERS COMBINED.

FIRST, the Wheels are from twelve to fifteen inches higher than any other make, and equalizing the draft as we do, makes it the lightest running harrow ever made. The frames holding the teeth are made in two sections, which are easily managed by the driver, and he is able to regulate the depth of either section without getting off his seat. No farmer can afford to buy any other when he can get the LANSING. Send for our Spring Circular, showing the best line of improved implements ever offered in this market.

October 17th, 1883, Elston Farm, Glencoe, Md.
Dear Sirs:—The LANSING SPRING TOOTH RIDING HARROW is a fine implement, and I hope to sell some to members of our club. I bought this harrow to prepare corn stubble for wheat, and it answers for that better than any implement my farmer ever used, and is very light draft for the work done.

WE ARE ALSO AGENTS FOR THE
BUCK THORNE BARBED WIRE,
—FOR FENCING.—
THE BEST WIRE OUT. NOT DANGEROUS TO STOCK.
J. C. Durborow & Co.,
35 LIGHT STREET, BALTIMORE, MD.

EGGS FOR SALE.

From Prize Winning Stock.
PLYMOUTH ROCKS, WHITE BRAHMAS,
BLACK COCHINS, SILVER POLANDS,
BROWN and WHITE LEGHORNS,
BLACK and SILVER BANTAMS
and HOUDANS.
W. E. MANNAKEE,
BURNED MILLS, MD.

BRONZE TURKEY EGGS

For sale at \$5 per setting of 13, securely packed for shipping.

D. M. MATTHEWS,
Dulaney's Valley, Balto. Co. Md.

NEW SEED POTATOES FOR SALE.

WHITE ELEPHANT, WHITE STAR, WATSON'S SEEDLING at \$1.25 per bushel.
DANIEL KING,
Finksburg, Carroll County, Md.

Peter Henderson's
COLLECTION OF
SEEDS AND PLANTS
Embracing every desirable novelty of the season, fully described in their
MANUAL
of EVERYTHING for the
GARDEN
which for 1888, contains PETER HENDERSON'S
"Revised Instructions on Vegetable and Flower Culture," making it a condensed Gardening Book, having all the latest information known to the author of "Gardening for Profit." Mailed free on application.
(Please state in what paper you saw this.)
Peter Henderson & Co.,
35 & 37 Cortlandt St., New York.

WATER-PROOF BUILDING MANILLA
This water-proof material resembles fine leather, is used for roofs, outside walls of buildings, and inside in place of plaster.
W. H. FAY & CO., N. Y.

Mt. Pleasant Poultry Yards,
PLYMOUTH ROCKS EXCLUSIVELY
Eggs, \$2 per setting of 13, or two settings for \$3.
C. W. HARVEY, Westchester Ave.,
Near Ellicott City, Md.

FIRST ANNUAL REPORT OF THE PEOPLE'S MUTUAL LIFE STOCK INSURANCE COMPANY.

OF BALTIMORE CITY, MD.
FOR THE YEAR ENDING JANUARY 10, 1883
Policies issued during the year..... 3,619
Number Policies lapsed..... 141
expired..... 26

in force..... 3,452

Number Policies written for 3 years, now in force..... 9,678
Number Policies written for 2 years, now in force..... 222
Number Policies written for 1 year, now in force..... 627
Estimated value of Stock Insured..... \$491,607 00
Insurable..... 368,705 00

CASH RECEIVED.
Total amount..... \$16,777 15
Via—Premiums..... \$9,481 63
Policy Fees..... 1,281 60
Transfer Fees..... 25 55
Assessments..... 6,372 90
All other receipts..... 610 08

CASH DISBURSED.
Expenses (Office Rent, Salaries of Officers, Clerk Hire, Postage, Printing, Stationery, Gas, Fuel, Licenses, Advertising, Travelling Expenses, &c., &c.)..... \$4,052 21
Agents' Commissions..... 4,248 04
Inspection of Stock..... 934 50
Medical attendance to Stock..... 120 00
Establishing Agencies..... 350 00
Death Losses Paid..... 5,798 00
Cash on hand..... 1,279 48
Total..... \$16,777 15

RESOURCES.
Cash on hand and in Bank..... \$1,279 40
Cash in the hands of Agents..... 633 41
Assessments in course of collection..... 1,443 05
Company's Resources from assessable liability of Policyholders as per Company's calculation of four (4) Assessments per year..... 80,352 00
Total Resources..... \$83,707 86

LIABILITIES.
Death claims due and unpaid..... None
Death claims reported, but not due..... \$836 00
Death claims resisted..... None
Due for salaries of Officers..... None
Due for commissions of Agents..... None
All other debts and claims against the Company..... None

Total Liabilities..... \$836 00
STATE OF MARYLAND,
CITY OF BALTIMORE.

On this sixteenth day of February, A. D. 1883, personally appeared before me, ROBERT S. COOPER, President, and ELI W. FAY, Secretary, of THE PEOPLE'S MUTUAL LIFE STOCK INSURANCE COMPANY, of BALTIMORE CITY, Md., who being severally sworn according to law, did depose and say that the foregoing Statement of the condition of said Company on the nineteenth day of January last, is a just, full and true Statement of its affairs and condition, to the best of their knowledge and belief.
Sworn and subscribed before me the day and year aforesaid.

JOHN T. MADDER, J. P.

FOR SALE.

A FINE JERSEY BULL CALF. Sire "Jewel" Box No. 5430; Dam Hannahbret, No. 18660. Full pedigree given upon application to
THOS. P. ELLICOTT,
3 Spear's Wharf, Baltimore, Md.

\$72 A week made at home by the industrious. Best business now before the public. Capital not needed. We will start you. Men, women, boys and girls wanted everywhere to work for us. Now is the time. You can work in spare time, or give your whole time to the business. No other business will pay you nearly as well. No one can fail to make enormous pay, by engaging at once. Costly outfit and terms free. Money made fast, easily, and honorably. Address Taux & Co., Augusta, Me.

GEORGIA MELONS!

CHOICE SEED FROM SELECTED FRUIT.
(RATTLESNAKE, (OR STRIPED),
SCALY-BARK, (DARK GREEN).)
The Premium Watermelons of the World! Seed from choice crops of Richmond County, and from selected large melons of perfect quality. Price, canes 20 cents pound \$2.00. Postage 16 cents per lb. Address
J. H. ALEXANDER,
Drug and Seed Store, Augusta, Georgia.

WM. FRASER,
Landscape Gardener
and Florist.

STORE, 277 E. Baltimore Street; GREEN-HOUSE, Belair Avenue, opposite Schuetzen Park.

County seats laid out, Gardens planted and kept in order by the year. Plans and Estimates furnished on application. Plants Trees and Shrubs at the lowest rates. As a guarantee of good work we refer to our record for the past 10 years as Superintendent of Patterson Park.

ROCHESTER COMMERCIAL NURSERIES

Hardy Trees, Shrubs, Vines, Roses, &c. New Spring PRICE LIST with prices per 100, 1,000, mailed FREE. Send stamp for descriptive FRUIT and illustrated ORNAMENTAL catalogues, six cents. Fair prices, prompt attention, and reliable stock. Address
WM. S. LITTLE, Rochester, N. Y.

WESTERN STOCK FARM FOR SALE.
Situating in the heart of the great Western stock region. Valuable improvements; 1,000 acres under fence. Thoroughbred Stock, Stables, Sheds, Corals, and every convenience for fine stock growing. Handsome Brick Residence. For full particulars apply to GEO. F. BENIS, Omaha, Neb.

GRAPE VINES

Of following varieties at low prices and guaranteed to be true to name, viz: HARFORD, PERKINS, CONCORD, IVES, CATAWBA, MARTHA, DELAWARE, ELVIRA, GOTTIE, LINDLEY and SALEM.
L. GIDDINGS,
Annapolis, Md.,

Peruvian Guano.



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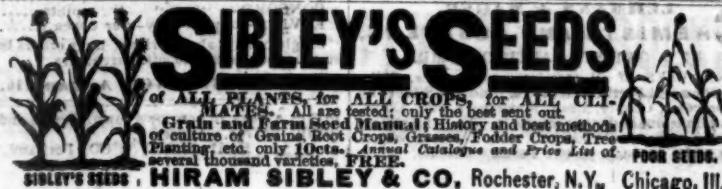
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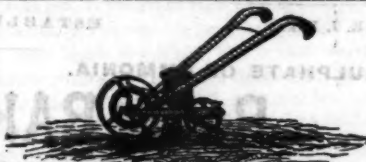
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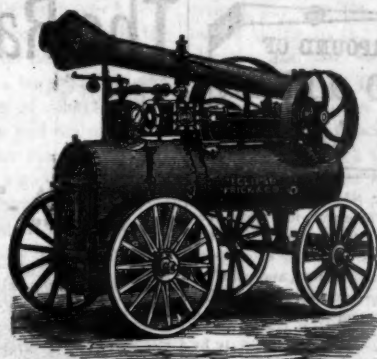
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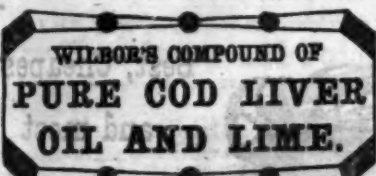
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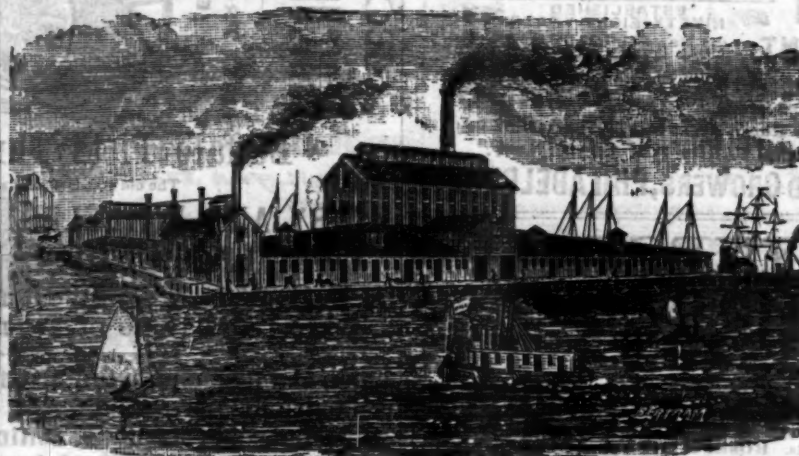
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